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SYNOPSIS

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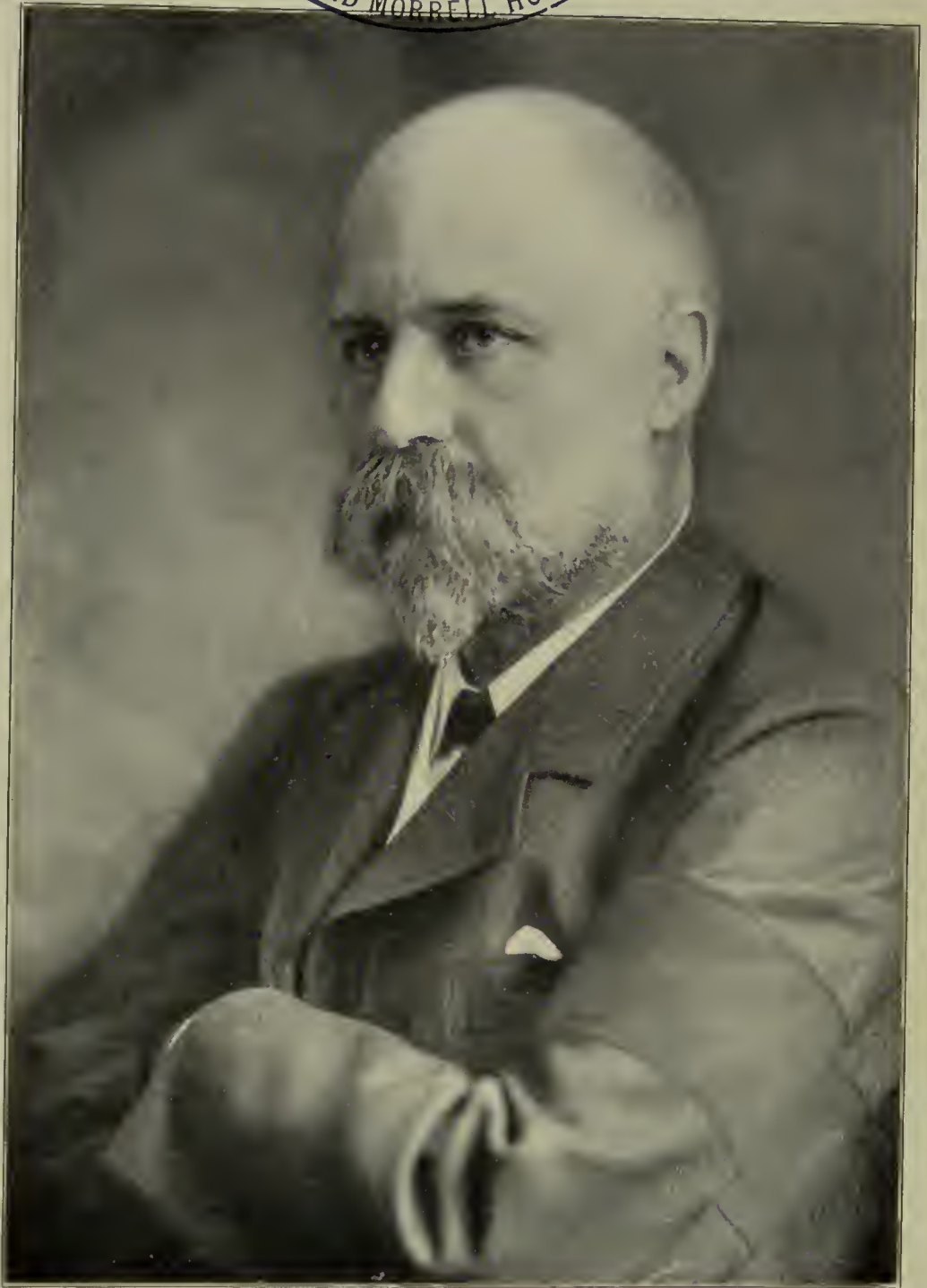
KNOWN PHALLOIDS

By
C. G. LLOYD

WITH AN
ILLUSTRATION OF EACH SPECIES

CINNATI, O. - SEPTEMBER, 1909

K5040



Ed. Fischer.

In this pamphlet devoted to phalloids I am pleased to present a photograph of
Professor Ed. Fischer, Bern, Switzerland, who is the best authority
in the world on the phalloid subject.—C. G. L.



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INTRODUCTION.

Phalloids are in many respects the most remarkable fungi that grow. Usually they are excessively fetid, and persons who would pass by an ordinary fungus without noticing it have their attention strongly fixed when they chance upon one of these "ill-smelling things." In addition they assume most bizarre shapes and often bright colors. I hope these features, probably intended by nature to attract flies, will attract the attention of those to whom this pamphlet is sent.

From the very nature of phalloids, they should be studied in the countries where they grow. Accurate work can not be done in Europe with such fugitive plants, and a large part of what has been written on the subject is not reliable. More has been added to our knowledge by the observations of Penzig, Moeller, Petch, Long, and Cobb, in very recent years, than from all other sources, and these men observed and studied the phalloids in the countries where they grow.

It was with the view of summarizing what is known of the phalloid subject and making it available to students in all parts of the world that this pamphlet has been written. We hope to interest observers in such unworked fields as India, Japan, Australia, West Indies, and South America (except portions of Brazil). We should be glad if any observer in any country where the phalloids are not well known (cfr. page 6) would publish with good photographs an account of such species as he observes. We believe that all the well-known species can be readily determined from this pamphlet.

We trust, however, that this will not lead to a flood of "new species" by inexperienced observers. The species of phalloids, like all fungi, are widely distributed, and wherever you may be located most of the phalloids you will find are recorded in this work. They may differ in unimportant details and seem new to you, but we strongly advise you before publishing to first submit a good photograph, color notes, and a dried specimen to Professor Ed. Fischer or to myself for an opinion.

C. G. LLOYD,

63 rue Buffon, Paris, France.

WHAT IS A PHALLOID?

It would be out of place in a work of this kind, intended for general distribution, to enter upon any technical, botanical discussion of what constitutes a phalloid. Most persons know them by reputation, and with certainty if they have met them. If not, they will know them as soon as they look through our pictures.

Phalloids are always fleshy fungi, always fetid, and appear as if by magic in our woods and fields. When young, they are enclosed in a gelatinous membrane called a volva, which breaks, and the plant develops so rapidly that I will not go into details for fear that some of my readers will think I am not telling the truth. I have often carried home the eggs, but have never seen them develop, as my specimens have always developed during the night. In a single night the species observed have reached a height of eight inches. One author has a picture showing a plant to have grown 4 cm., or an inch

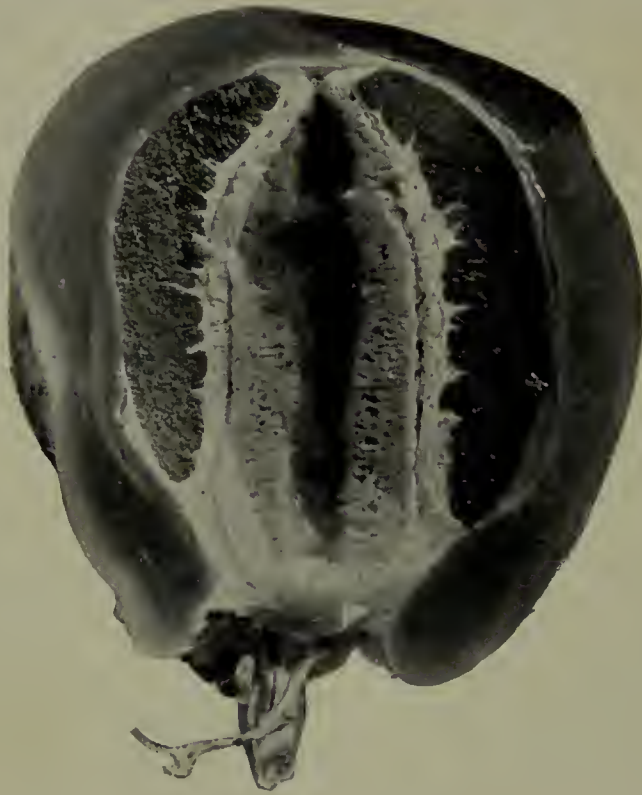
and a half, in one minute of time. Of course this is not true growth by the accretion of cells, but rather a mechanical process by the expansion of cells.

The "roots," or mycelium, as it is correctly called, of phalloids grow in the earth, or rotten wood, and take the form of long, white cords. The illustration on the opposite page is a cluster of this mycelium, which has developed several "eggs," or young phalloids. If we cut open one of these eggs we will find it to contain an undeveloped plant, as shown in the figures herewith. But it is best not to cut

them open, but to take them home and place them on a dish, and in a few days you will have some perfect plants.

THE COLOR OF PHALLOIDS.

There are only three colors known in the phalloids: red, yellow, and white. Most species are red, or some shade of red, pink, flesh, or orange. A few are yellow, and many are white. The yellow and red phalloids seem quite distinct, and do not run into each other, but the red species are apt to have white forms.





DEFINITION OF TERMS.

In the description of phalloids it is necessary to use a few botanical terms, but they are simple and will be readily understood from the following explanation.

VOLVA.—All phalloids (excepting one genus, *Phallogaster*) when young are enclosed in a subglobose membrane called the volva. In this state a phalloid can well be compared to an egg; in fact, it is customary to speak of young phalloids as "eggs." The volva or shell, however, is a soft, thick, gelatinous membrane. When the plant develops the volva bursts at the top and remains as a cup at the base of the mature phalloid. All our pictures of phalloids show the volva at the base of the plant, at least all pictures that were made from perfect plants. If there is no volva at the base it is because the illustration was drawn from an imperfect specimen.

RECEPTACLE.—This is a term that is applied to the portion of the plant that bears the greenish, mucilaginous mass (called the gleba). In some phalloids (such as *Clathrus*) the entire plant, exclusive of the volva, forms the receptacle. In others, such as *Simblum*, the receptacle is borne on a stem. Some phalloids are a simple, stem-like structure and bear the gleba directly on the upper portion, then of course the upper portion of the stem is the receptacle.

GLEBA.—This is a greenish, viscid, fetid substance with which all phalloids are supplied. It is in fact the fruiting portion of a phalloid, for it contains innumerable, microscopic spores which are analogous to the seed of flowering plants. It is the gleba of a phalloid that is usually so excessively fetid. This bad odor, as offensive as it may be to us, serves a useful purpose to the plants, as it attracts flies and other insects that are the means of the dispersion of the spores.

STEM.—The stem (or stipe) of a phalloid needs no special explanation. It is used in the ordinary sense of the word. Some phalloids have no stems.

PILEUS.—There are some phalloids (the genus *Phallus*) that have the gleba borne on a special membrane on the top of the stem. This is usually conical or hat-shaped and is called the pileus.

VEIL.—A most striking feature in a few species that have pilei is a thin, net-like membrane that hangs from under the pileus and spreads out as a net around the stem. It is called the veil (or more correctly the indusium) but we prefer to call it the veil.

HISTORY OF PHALLOIDS.

We can not write the history of the phalloids because it is not known. There are only five countries in the world where the phalloids are well known, viz: Europe, the United States, Brazil, Java, and Ceylon. Most of the mycological writers have lived in Europe and the United States, and the easy, conspicuous fungi such as the phalloids are well known. In Java most excellent accounts of the phalloids have been written by Penzig, and in Brazil by Moeller. In the United States a good account of the phalloids of Texas was published by Long, and in Hawaii by Cobb.¹ Very recently—in fact, since this pamphlet was in the printer's hands—we have had an excellent account of the phalloids of Ceylon, by T. Petch. Aside from these five papers, however, most of the work on the subject has been in the line of new species exploitation.

¹ Mr. Cobb marred his paper by discovering some "new species" that were only new to him; otherwise, his paper was most excellent.

If a census were taken of the individual specimens that have reached Europe from foreign countries, probably more than one-half have been discovered to be "new species." Most of these new species finally gravitate where they belong, into the trash pile known as synonyms. Professor Fischer, of Berne, Switzerland, has done good work in disposing of a great many of them. We shall help the subject along to the best of our ability in one of our appendices.

NAMES OF PHALLOIDS.

Like all objects of natural history, phalloids have Latin names, and in addition to each is usually appended a personal name, primarily designed to tickle the vanity of some individual. Under this system they have never acquired any stable names, for each person who writes about them is chiefly interested in getting up new names to which to append his own. By this means the names of phalloids (like all fungi) have been shuffled about like a shuttlecock. There are only forty-nine phalloids that are at all well known, and fifty-eight more or less vague and often inaccurate accounts and forms. These one hundred and seven species have two hundred and ninety-nine different names. One of them alone, *Phallus indusiatus*, has twenty-four different names. It is customary in "scientific" monographs to rake up all these various combinations, tabulate them, usually in chronological order, append with great minutiae the various promoters of these names, and when finished the result is so largely personal it resembles the society notes in a daily newspaper. We present in an appendix (page 77) an alphabetical list of the names which in our opinion have no value, to the number of 192, and in our Index (page 96) the names we have adopted, to the number of 107. Every writer should, of course, use a nomenclature that expresses his views of how the various species are most naturally grouped into genera. And, where changes are advisable in an author's arrangement, it is at best unfortunate, if he is using a system of writing his own name after such changes, as it may give the impression that this is perhaps the strongest reason for the change. We have made but very few changes and have found it necessary to discover but one new genus.

THE STATE OF PHALLOID KNOWLEDGE.

The phalloids of Europe (and there are but six species in Europe) are, with perhaps one exception, well known. The same can be said to-day of those of the United States, though, owing to the vague manner in which several of them were exploited, it is only in recent years that any clear, definite idea has been obtained of them. Taking into account those that occur in both countries, this includes fourteen species and forms. The first foreign paper in which the phalloids were well presented was only ten years ago, an account of the species of Java, by Penzig. In this paper sixteen species and forms were considered, and at least fourteen were well illustrated. Then there appeared a paper on the phalloids of Brazil, by Moeller, in which nine species were well illustrated. Recent writers, and this includes both Penzig and Moeller, have had the benefit of photography, the best method of illustrating a phalloid. Previously the illustrations were mostly made up from dried specimens or copied from sketches, which gives results, sometimes very good, but often more or less doubtful, sometimes very vague and amusing, and in a few instances they seem to be pure fakes.²

There have been a number of compilations similar to this pamphlet, in which the literature has been raked over, and the supposed species arranged with their names more or less shuffled around. This, however, is the first in which all the pictures have been brought together. The first crude attempt was by Ventenat, in presenting one of the first foreign species. 'Then Fries'

² We know two or three in Europe that in our belief come under this head, and one in America.

Systema (1823) at which time nine foreign species had been figured, and four in Europe, or thirteen in all, and one of the European was a freak. Excluding the freak, all twelve of these species are recognized in this pamphlet, nine of them under the same names as used by Fries. The next general compilation was by Schlechtendal, about fifty years ago. In the meantime, the new species hunters had been quite busy, and Schlechtendal succeeded in finding forty-five species, and he seems to have taken practically all of them at their face value, nor did he indulge in inventing new genera in order to change the names. It is an evidence of the "progress" that since that time, nearly fifty years ago, not an iota of information has been added nor another specimen recorded as to twenty-seven of his forty-five species. Some of them have been discarded as being worthless on their face, but those of the twenty-seven that are retained and known to-day are included in this pamphlet on exactly the same knowledge (?) that Schlechtendal had when he wrote fifty years ago. The next work was by Professor Fischer, in 1886, a compilation of the species described and numbering seventy-six, including the doubtful ones. Practically the same species were included in Saccardo (vol. 7) two years later. After making these compilations, Professor Fischer began his real study of the subject. First, he visited Paris and wrote his first *Untersuchungen* in 1890, then he visited London and Berlin and wrote his second *Untersuchungen* in 1893. A third *Untersuchungen*, principally to include the work of Penzig and Moeller, was issued in 1900. Professor Fischer has studied practically all the specimens in the museums of Europe and the result of his studies has been the rejection of many of the species included in his earliest work, and the reduction of others to forms or varieties. Of the seventy-six species included in his first work, only twenty-three stand as original and good species, and twenty-eight are doubtful. In addition, twenty-eight new species have been added, mostly the work of himself, Hennings, Penzig, and Moeller. This makes a total of fifty-one species, recognized as "good" by Professor Fischer, and twenty-eight doubtful, or a total of seventy-nine.

I have worked over practically the same ground as Professor Fischer, the same museums, and I am in very close accord with him as to the species. As are all who have had the opportunity to see specimens from many localities, Professor Fischer is very liberal in the treatment of species; more so than I, for I maintain a number in this pamphlet that Professor Fischer refers to synonymy. I have not refused to recognize any "new species" that has been exploited in an intelligent manner and that was accompanied by a drawing or photograph showing any material difference. The twenty odd phalloids in this pamphlet, in addition to those recognized in Professor Fischer's latest work, are mostly those that he has referred as forms.

I decline to recognize the alleged "new species" that have been proposed with so much verbosity and so little illustration. No man can give any idea of a phalloid by a mere word description, whether he writes in English, French, German, Chinese, or Pidgin Latin, and it is time this fiction was wiped out of our "literature." In these days of "law-makers" there ought to be a law with a heavy prison penalty for any one who engages in such work. I refer to them in the synonyms as "nomina nuda," although it is a paradox to so call things exploited with so much verbosity.

THE WORK IN THIS PAMPHLET.

We have included in this pamphlet the best illustration known of each phalloid that we recognize. We consider the study of phalloids largely a picture study, and our readers can take these illustrations and form an opinion as to the identity of any phalloid they find with almost as much advantage as if they had access to the types.

In our text we have not entered into minute descriptions, believing that in most cases it is superfluous. We have given the leading facts as to the occurrence of the various species as far as known, the color, and have pointed out the manner in which they differ from each other. We have presented

the best picture possible of each species, and in many cases the copies of the original illustration from which the description was drawn. With these facts before him, the reader can learn just as much about the phalloid as the author who named it and wrote the "description."

CLASSIFICATION.

There are relatively few genera of phalloids, and they are classed by their general form, so that the classification is a very simple matter and will be readily understood by the following table and the illustrations. As a matter of convenience we divide them into five groups:

1st, The simple stem section. Gleba borne directly on the upper portion of a simple stem, or on a pileus borne on top of a simple stem.

- Gleba borne on the outer surface of a special pileus.
 - Pileus even, rugose, or reticulate.....Phallus
 - Pileus surface strongly convoluteClautriavia
 - Pileus of a lamellate structure, the gleba covering the plates....Itajahya
- Gleba borne directly on the upper portion of the stem. No special pileus.
 - Smooth, evenMutinus
 - Rugose, papillate or unevenJansia
 - Gleba covering a rudimentary networkFloccomutinus

2d, The lobed section. Gleba spread over or on the inner surface of free arms or lobes at the apex of the stem.

- Arms free at the apex of a columnar stemLysurus
- Stipe, a flaring tube, the limb lobedAnthurus
- Stipe bearing a disk-like expansion, the limb divided into lobes or segmentsAseroe

3d, The columnar section. Receptacle consisting of simple, vertical columns, united at the top and bearing the gleba on the inner sides.

- Scssile Laternea
- StalkedPseudocolus

4th, The clathrate section. Receptacle in the form of a clathrate or latticed structure.

- Sessile, simpleClathrus
- Stalked, receptacle a simple net.
 - Borne on a simple stem.....Simblum
 - Borne on columns that are united into a hollow tube at the base....Colus
- Stalked, the net-work having knob-like projectionsKalchbrennera
- 5th, Anomalous genus, without volva.....Phallogaster

THE GENUS PHALLUS.

This is the original genus of Europe and from whence the name of the order is derived. The genus is very simply characterized by having a pileus, borne on the top of a simple stem. All species of the genus are very much alike as to shape, but differ in color, in size, in smoothness or roughness of the pileus, and in various developments of a veil. This veil, which is only known as rudimentary in the related genus Mutinus, varies much in different species of Phallus, and even in the same species in degrees of development. Some species have only a rudimentary veil, others a distinct but very

short veil hidden under the pileus, or slightly protruding, others a very conspicuous, long veil. The gleba covers the outer surface of the pileus. In a few species this pileus is even, or relatively smooth; others reticulate, or ridged. Usually the pileus has an apical collar that is entire or perforate, sometimes in the same species. Some species are devoid of this apical collar, and one, *Phallus subtilis*, has been erected into a genus principally on this account. We would divide the species into two sections, as Professor Fischer does, though we would not designate these sections by distinct generic names. We think the old name *Phallus* should cover them both.

Section 1, Veil short or merely rudimentary. Section 2, With distinct veils. Each section is also subdivided on the character, whether the pileus is relatively smooth and even, or is reticulate with ridges.

SECTION I. VEIL SHORT OR MERELY RUDIMENTARY.

PILEUS STRONGLY RETICULATE.

PHALLUS IMPUDICUS (Fig. 1).—It seems to me to be useless to use any space in describing *Phallus impudicus*. It is such a well-known plant, even to every peasant in Europe, and, besides, our photograph is the best description. The stem is white and the pileus has strong reticulations, not shown in our photograph where they are covered with the gleba. *Phallus impudicus* is the original phalloid, and the most common one of Europe. It extends throughout Europe. In the United States we do not have the type form of Europe, but a pinkish variety known as *Phallus imperialis*. In Japan, *Phallus impudicus* (the type form I judge from the drawings I have seen) is common. In Australia it is rare, if it occurs at all. Only one collection is known, now at Kew, which does not accord exactly with the European plant, but is close to it. *Phallus impudicus* probably occurs in other countries, but the above are all that are surely known.

Forms.

PHALLUS IMPERIALIS.—This form differs from the type form only in having a pink volva and in its distribution. I am told that in France it has a different habitat, and a different odor. I can not vouch for that. At any rate it is a rare plant in Europe, widely distributed but infrequent. In the United States it is the only form of *Phallus impudicus* we have. It is common in the West—Colorado, Southern California, and Texas. East of the Mississippi, I know of but one station, Washington, D. C. From its distribution it is evidently a plant that favors a warm climate and a sandy soil.

PHALLUS COSTATUS (Fig. 2).—This species, which was described from Java, is evidently similar to *Phallus impudicus*, and seems to me is better considered as a form. It differs chiefly in having more pronounced, almost winged reticulations to the pileus, and the substance of the pileus is described as yellowish-white.

PHALLUS TENUIS (Fig. 3).—A small yellow-species, native of the Orient. It can easily be known from all others of the section by its yellow color, both of stipe and pileus, and in addition by its

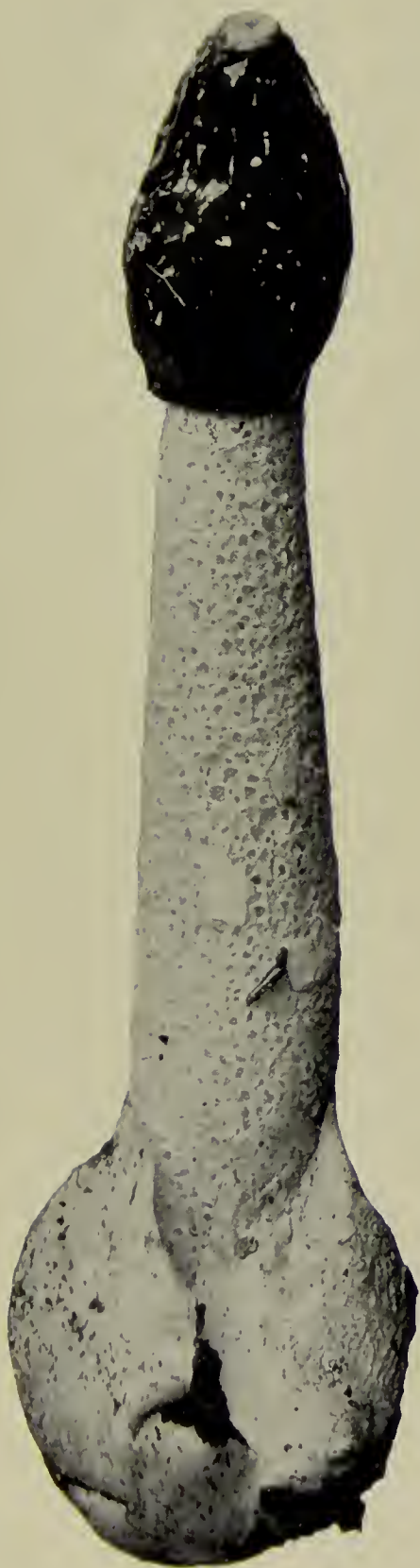


Fig. 1.

PHALLUS IMPUDICUS.



Fig. 7.

PHALLUS RAVENELII.



Fig. 3.

PHALLUS
TENUIS.



Fig. 5.

PHALLUS RUBICUNDUS.



Fig. 9.

PHALLUS RUGULOSUS.



Fig. 2.

PHALLUS COSTATUS.



Fig. 4.

PHALLUS FAVOSUS.



Fig. 8.

PHALLUS RAVENELII.
(reduced)
(With protruding veil.)



Fig. 10.

PHALLUS GLUTINOLENS.

small size and thin substance. The dried specimens appear like a thin skin. *Phallus tenuis* was originally from Java, but must be a rare species there, as Dr. Bernard does not record it. It occurs also in Ceylon (specimens at Kew), and Professor Kusano has found it (very rarely) in Japan. In the latter country it grew on rotten wood. The stipe of the Javanese form is yellow, but in Japan it was represented as white. The original description makes no mention of the plant having a veil, but one of Penzig's figures shows a rudimentary veil hidden under the pileus.

PHALLUS FAVOSUS (Fig. 4).—This species, also known from Java, and rare there, is intermediate between *Phallus impudicus* and *Phallus tenuis*. With the large size of the former, it has a relatively thin pileus and a pale, yellowish stem. The substance of the pileus is also pale, but not so clear yellow as that of *tenuis*. It is only known from the original record.

PILEUS RELATIVELY SMOOTH OR MERELY RUGULOSE.

PHALLUS RUBICUNDUS (Fig. 5).—Stem, red. Pileus, red, smooth, or slightly rugose, covered with the greenish gleba. Apex, perforate, or sometimes imperforate. This is the only red species of the genus *Phallus* that we have, and it is widely distributed. It occurs in abundance in certain localities in our Southern States and many other warm countries. It has been named from India (*Phallus aurantiacus*), Africa (*Phallus sanguineus*), Australia, Hawaii. I have seen a drawing from China, and it is reported from Japan. In Hawaii it has been shown to be the cause of a destructive root disease of the sugar cane. When we get a better knowledge of the distribution of our phalloids, I think that *Phallus rubicundus* will be found in almost all sugar countries. I believe there is only one red *Phallus*. Forms from various countries seem to differ in being slender or obese; the pilei, in being truncate or acute, perforate or imperforate, with an apical collar or without, but the material is not at hand from which to form any opinion as to the systematic value (if any) of these differences.

Forms.

PHALLUS GRACILIS (Fig. 6).—*Phallus rubicundus* varies chiefly in stature. Slender forms have been called *Phallus gracilis*. For a long time the characters of *Phallus rubicundus* were not known other than the fact that we had a red *Phallus* in our Southern States. A recent article of Professor Long has given us a clear idea of its characters and convinced us there is no distinction between it and *Phallus aurantiacus* as it has generally been known in foreign countries.

PHALLUS RAVENELII (Fig. 7).—This is the most common phalloid of the United States, there replacing *Phallus impudicus* of Europe. In general appearance it resembles *Phallus impudicus*, but has a smoother pileus and a veil, usually short and hidden under the pileus. Rarely, however, it occurs with a protruding veil (Fig. 8). Usually *Phallus Ravenelii* grows on logs in the woods, sometimes on

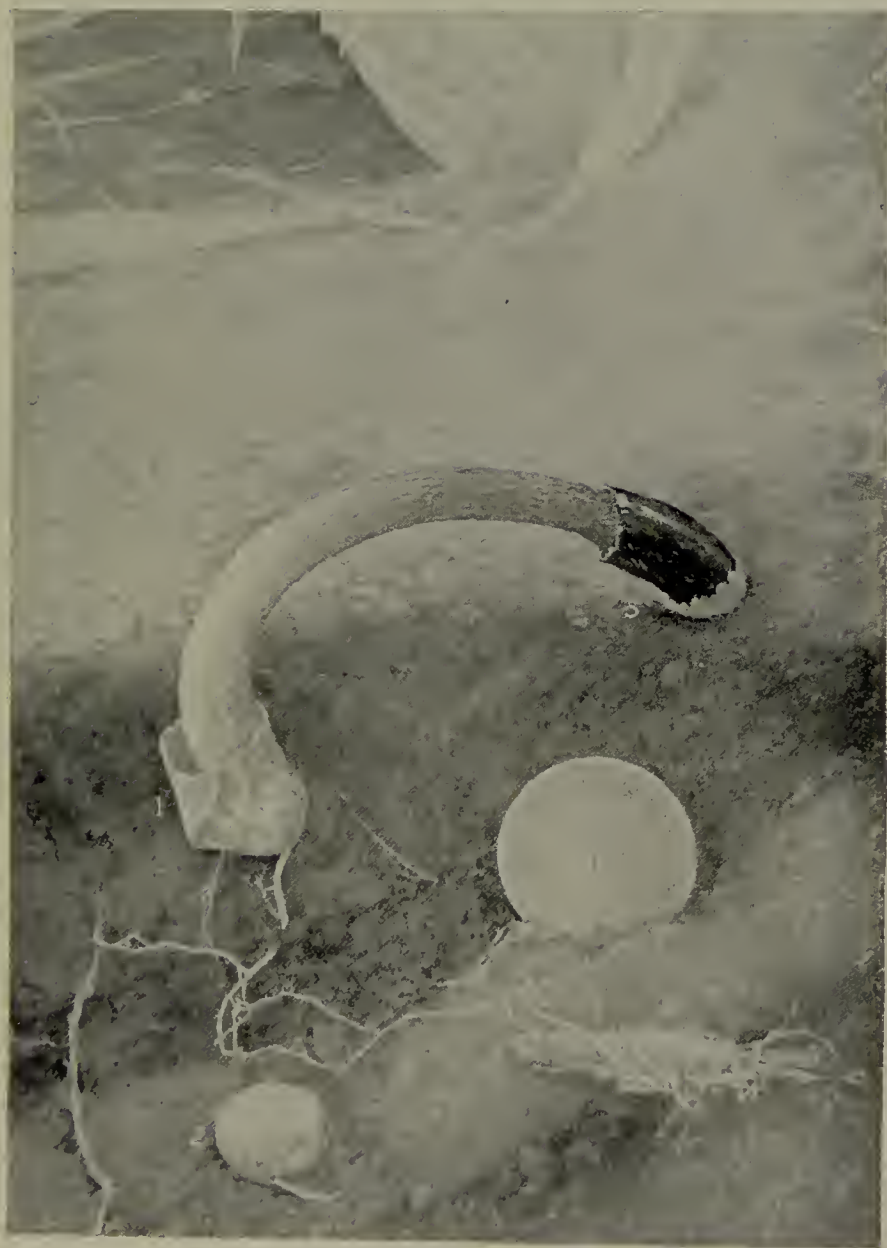


Fig. 6

PHALLUS GRACILIS.

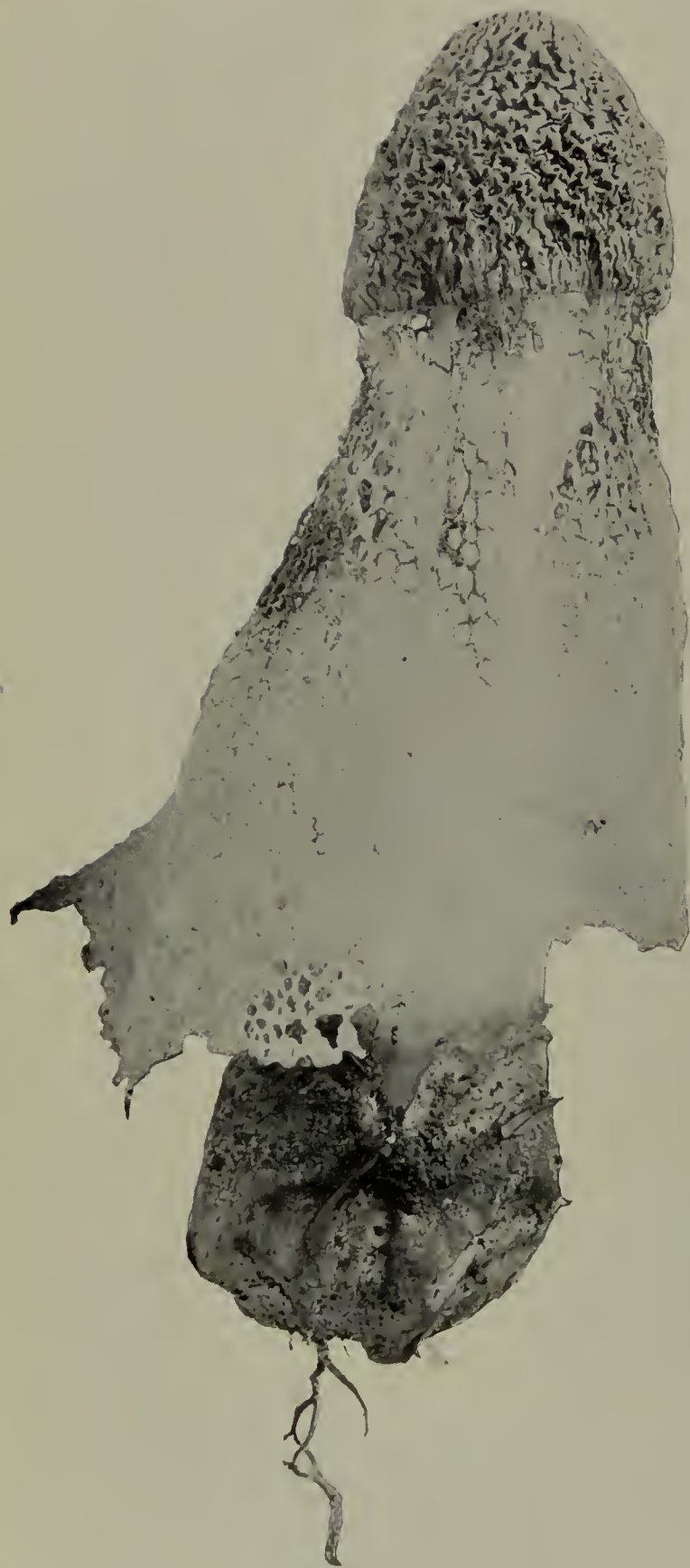


Fig. 12.

PHALLUS INDUSIATUS.



Fig. 15.

PHALLUS DAEMONUM.



Fig. 16.

PHALLUS DUPLICATUS.

the ground, and sometimes it develops in the greatest abundance on old piles of sawdust. The species is only known from the United States and Canada.

PHALLUS RUGULOSUS (Fig. 9).—Pileus, thimble-shaped, almost even or slightly rugulose, with a small, globose, apiculate collar. Color, dark. Veil, none. Stem, pale reddish. This species was described from alcoholic material, and is known only from Japan, where it is reported to be common. I have seen a drawing from Professor Kusano. As I understand it, the substance of the pileus is not red, otherwise the plant seems close to *Phallus rubicundus*. I should not be at all surprised if it develops that it is a slender form (*gracilis*) when the color of the pileus substance is known.

PHALLUS GLUTINOLENS (Fig. 10).—This is a unique species of *Phallus*, known only from Brazil. It has white stipe and no evident veil. The pileus is smooth and differs from all other species in the *globose* shape. It has only been observed by its original author, who gives us a good photograph of it.

PHALLUS SUBTILIS (Fig. 11).—This Brazilian species has only been illustrated by a sectional drawing. A photograph would not show any marked difference from any other small *Phallus*. It was erected into a separate genus because the pileus has no apical collar, and a section shows it to be formed of radiate plates. It is also somewhat gelatinous in its nature. It is only known from Brazil and from the work of the original author.

SECTION 2. VEIL EVIDENT, USUALLY STRONGLY DEVELOPED.

PILEUS STRONGLY RETICULATE.

PHALLUS INDUSIATUS (Fig. 12).—Pileus broadly campanulate, strongly reticulate. Veil strongly developed, of small, slender threads and large meshes. Color of stipe and veil white. This is the most common phalloid of all tropical countries and is found in quantities in all of the museums. We have noted specimens from Australia, India, Andaman Island, Java, Ceylon, East Africa, Mauritius, Mexico, Brazil, British Guiana, French Guiana, South Africa, Surinam, New Caledonia, Cuba, Tonkin, Philippines, Borneo, Jamaica. We have received it from a number of correspondents and have collected it (common) in Samoa.

Forms.

Phallus indusiatus varies in the tropics, chiefly in the shape of the pileus and the veils. Also in color, I think, and I suspect that in time it will not be found practicable to keep distinct *Phallus callichrous* and *Phallus multicolor* as other than color forms. Usually the veil is flaccid, but at other times more rigid. Sometimes it is united above into a distinct membrane. These forms seem to have a geographical significance, but so little is known that at present it is not possible to designate the distribution of the various forms. In Samoa, where I have observed it common, it never takes anything but the type form.



Fig. 13.

PHALLUS MOELLERI.

PHALLUS ROSEUS.—A form with a pink veil, which is at Paris, from French Guiana. It is also reported from Java.

PHALLUS MOELLERI (Fig. 13).—A form with a narrow pileus and rigid, spreading veil, as illustrated by Alfred Moeller, from Brazil. Professor Moeller states that in Brazil it runs into the type form so intimately that it is not practicable to keep it distinct.

In the recent article by T. Petch, it is stated that this rigid veil is not a form even, but the *normal* condition of the veil of *Phallus indusiatus* when first expanded and before the sun strikes it. That which I have taken for the type form is a condition after the veil has been wilted by the sun. I have never observed this (in Samoa) nor should I have suspected it, as they seem so different, but Professor Petch undoubtedly knows. In the interest of truth then "*Phallus Moelleri*" must be deleted, even as a form.

PHALLUS ROCHESTERENSIS (Fig. 18).—A form with an elongated thimble-shaped pileus and narrow, cylindrical veil is found at Kew, from Australia. It has been illustrated under the erroneous name, *Phallus merulinus*.

Color Forms.

There are two very showy tropical phalloids that in shape and other characters appear to be the same as *Phallus indusiatus*, but have bright colors. At the present time we can characterize them by their colors, but when the phalloids come to be well known, I think so many intermediate colors will be found that color characters alone will not be held to constitute species. T. Petch finds these color forms abundant in Ceylon, and states that they grade into the white form so intimately that it is not possible to keep them distinct even as forms. I am satisfied, however, that they have a geographical significance. They do not occur in Samoa, and Mr. C. B. Ussher, who has observed the species in tropical Africa, informs me that they are absent there.

PHALLUS MULTICOLOR (Fig. 14).—This was originally from Australia, but has been recently found and photographed from Java. Pileus orange red, veil bright lemon yellow, stipe lemon yellow, volva pink, mycelium purple. The characters, if they are real characters, of the species are the colors as stated above.

PHALLUS CALLICHOUS.—This appears to be different from multicolor only in the coloration. The pileus is orange, the veil and stipe white. It has never been illustrated, but probably could not be distinguished by a photograph alone from either multicolor or *indusiatus*. It was originally named from Brazil, but similarly colored plants have been observed in Java, Africa, and Australia.

PHALLUS DAEMONUM (Fig. 15).—This, which was the original foreign phalloid, illustrated from the island of Amboy, was published one hundred and sixty years ago.³ All that is known of it to this day is the original, crude figure that we present. It seems quite distinct from the usual form in its punctate rather than reticulate pileus, if that proves to be a character of the plant and not of the figure only.

PHALLUS DUPLICATUS (Fig. 16).—Pileus with a strongly developed apical collar and strong reticulations. Veil long, white, of

³ It has therefore strong claims to be taken as the specific name for the species as proposed by Professor McGinty. There are two objections to it, however. First, it may be the "type" in the perverted sense that the word "type" is usually used, but it does not seem to be the typical form as the plant usually occurs. Second, it is not advisable to use so familiarly the name of His Satanic Majesty.



Fig. 14.

PHALLUS MULTICOLOR.

thick threads, which in alcoholic specimens contract and form almost a membrane. This is a common plant in the United States and is so close to the tropical species it may well be considered a temperate region form of it. However, it differs in the nature of the veil and the usual shape of the pileus, and I am convinced that it is as distinct as species generally are. The veil (which is torn in our figure) is a conspicuous feature of the plant.

Forms.

We would be disposed to consider related plants with a similar veil as forms of this species.

PHALLUS SUBUCULATUS, of Algeria, which was inaccurately figured, is, we think, a form of it.

PHALLUS MAURITIANUS (Fig. 17).—This form, which we have received in alcohol from Chas. O'Connor, of Mauritius, we feel is worthy of a separate designation as a form. It differs from the typical plant in the nature of the reticulations of the pileus, and is better shown in our photograph than we can tell it.

Note.—We formerly included in this section, under the name *Phallus irpicinus*, the only known phalloid with a well developed veil and rugulose pileus. It was proposed as a new genus (or a new section) *Clautriavia*, on account of having the pileus minutely convolute. We were not disposed to consider that of generic value, until recently when we saw at Berlin a New Guinea species with such a *strongly convolute* pileus, and such a marked character that we now feel that the genus *Clautriavia* should be maintained. Compare *Clautriavia mcrulina* on the next page.

IMPERFECTLY KNOWN SPECIES OF THE GENUS PHALLUS.

Many phalloids are known (?) only from old cuts based mostly on dried specimens and, in some instances, fertile imaginations. Naturally they are of not much importance for no one ever finds them again, but there is no way of getting rid of them. The genus *Phallus* has been especially favored (?) in this regard. We give a short synopsis of them here and have relegated the (alleged) pictures to an appendix.

PHALLUS DISCOLOR (Fig. 95).—From Australia, if correctly illustrated (with an emphasis on the "if"), is an intermediate plant connecting the genera *Phallus* and *Mutinus*. It was alleged to have the pileus adnate at the base to the *top* of the stem.

PHALLUS CALYPTRATUS (Fig. 96).—From Australia. Appears to be based chiefly on an accidental mass of gleba dried on top of the pileus.

PHALLUS RETUSUS.—Originally exploited as a new genus, it is reported by Professor Fischer (who has seen the "type") as an obese form of *aurantiacus*. The figure has no resemblance to *aurantiacus*, but it does not follow that the plant has none. It was from Australia.

PHALLUS CAMPANULATUS (Fig. 98).—Known only from the figure (Uruguay). The little cup at the base is not the volva, but the "inner" volva. It seems to have an even pileus and be close to *Ravenelii*, though nothing is known as to its veil. No specimen exists.

PHALLUS CELEBICUS (Fig. 99).—Said to grow in the Celebes and to have a whitish pileus and a yellow stem. It appears from the published account to be very close to *Phallus rubicundus*.

PHALLUS CANARIENSIS (Fig. 100).—If the figure is correct it is a peculiar little species with a slender stipe and large, rugulose pileus. Both

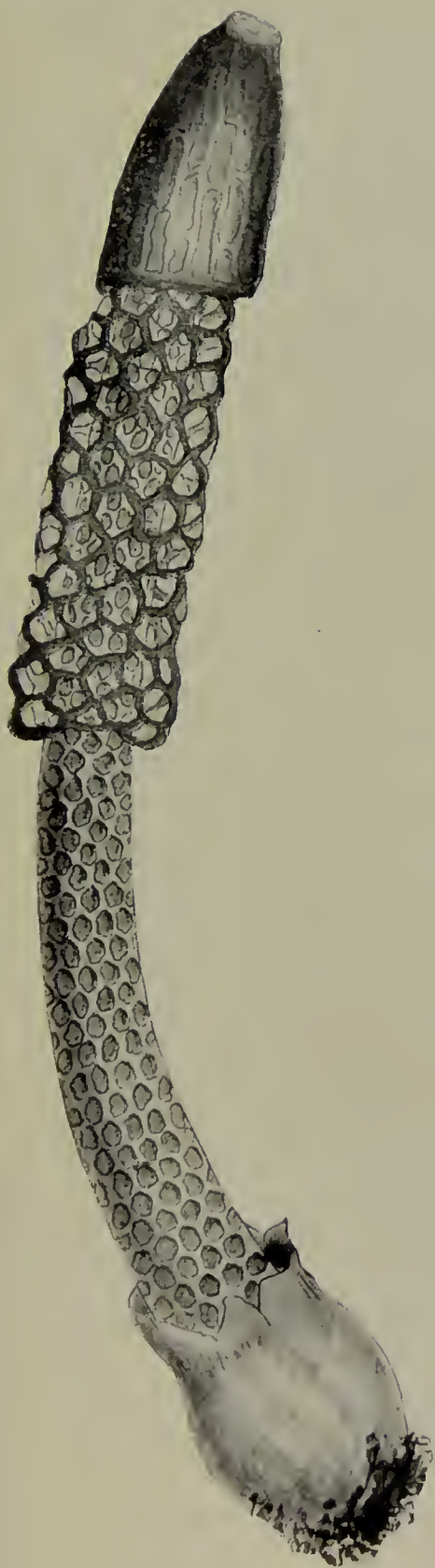


Fig. 18.

PHALLUS ROCHESTERENSIS.



Fig. 17.

PHALLUS MAURITIANUS.



Fig. 11.

PHALLUS SUBTILIS.
(Section.)

pileus and stipe are rose colored. It was from the Canary Islands. I have found no type.

PHALLUS FARLOWII.—This from alcoholic (or dried?) material from Brazil has never been illustrated. It is said to have a membranous veil, otherwise it is very close to *Phallus indusiatus*.

PHALLUS QUADRICOLOR (Fig. 102).—I think is probably based on a specimen of *Phallus multicolor* which has lost its veil. From Australia.

THE GENUS CLAUTRIAVIA.

This genus is characterized by having the surface of the pileus convoluted in folds, the gleba covering the folds and permeating the interspaces between them. Our figure (which is an enlargement six diameters) will give a clear idea of this structure. The original species, *Clautriavia merulina*, which is a frequent plant in Java, Ceylon, and the East Indies, in general (probably) has very minute folds, so that the surface to the eye appears even, but a recently discovered species of New Guinea, *Clautriavia Lauterbachii*, has the folds so strongly convoluted that in the egg the pileus appears to be a crumpled veil covered with gleba.



CLAUTRIAVIA MERULINA (Fig. 19).—This species has the general appearance of being a *Phallus*. The pileus, however, instead of being

a plain or reticulate membrane with the gleba on the outer surface, consists of minutely convoluted folds, the gleba permeating the depressions between the folds. It has long been known as a common species in Java.⁴ Recently T. Petch has published that it is abundant in the grounds of the Botanical Garden at Peradeniya, Ceylon. When the truth of the subject is known it will probably be found to be generally distributed in the East Indies and neighboring countries.

CLAUTRIAVIA LAUTERBACHII (Fig. 20).—This species, which has a most remarkable structure, is unfortunately known only from some undeveloped plants from New Guinea. The pileus in the

⁴ Berkeley named the plant *Phallus merulinus*, many years ago, and while he gave no formal description of it (in pidgin Latin) he characterized it in an unmistakable manner, it appears to me now. Fischer incorrectly referred the name as a synonym for *Phallus indusiatus*, and Cooke illustrated a form of *Phallus indusiatus* of Australia under Berkeley's name. Patouillard discovered it to be a "new species" from Java, and named it *irpieinus*, which name we have previously used, and would continue to use if it had any application to the plant. We adopt Berkeley's name, not on the grounds of "priority," but suitability, believing that when a plant has two names, one very good and one very bad, the better should be chosen.



Fig. 19.

CLAUTRIAVIA MERULINA.

egg is a strongly folded and convolute membrane resembling at first view a crumpled veil. What form it takes in the developed plant is not known, but it is probable that it does not change much, as the form of a pileus is in all known instances well defined in the egg. In addition the volva is covered with wart-like processes, which, while unknown as to any other phalloid, is in my opinion a minor character. The plant is only known from New Guinea, and a photograph of a developed plant is much desired.⁵

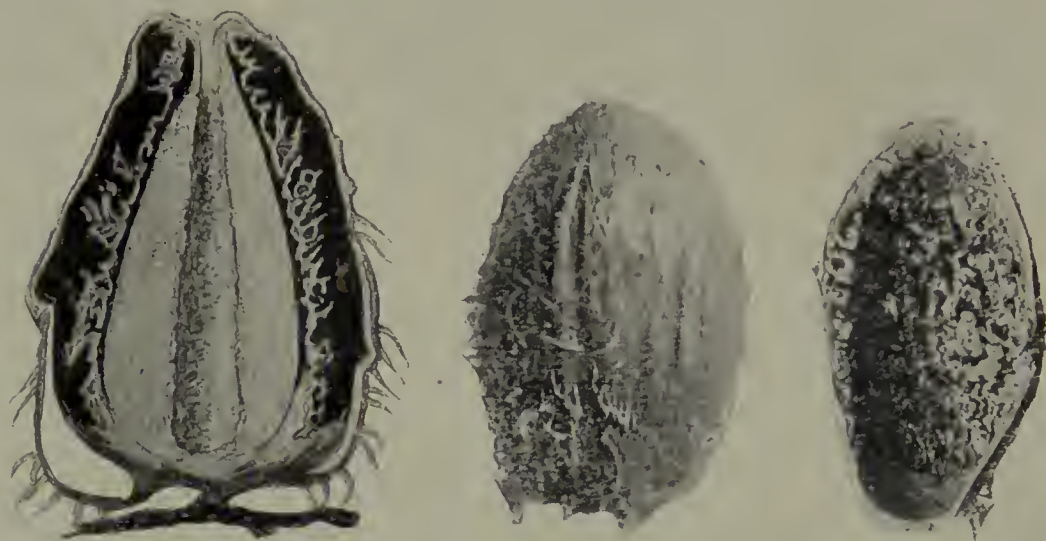


Fig. 20.

CLAUTRIAVIA LAUTERBACHII.

Section by Fischer. Photograph of the volva, also of the folds of the inner face of the pileus.

THE GENUS ITAJAHYA.

This genus in general appearance resembles the genus *Phallus*, but is quite different in the structure of the pileus. This consists of lamellate plates, the gleba covering these plates, permeating the inner structure of the pileus.

⁵ Until I saw the specimens I had a very erroneous idea of the characters of the plant, and I think they have been inaccurately presented in the published accounts. When Dr. Hennings received these phalloid eggs he sent them to Professor Fischer, who made what impresses me as a very accurate drawing of a section that he returned to Dr. Hennings with the suggestion that it be called *Ithyphallus lauterbachii*. We reproduce Professor Fischer's section in our figure (20). Dr. Hennings did not publish Fischer's figure as received, but modified it, showing a "hut" and an "indusium." The plant has but one membrane, which should be called the "hut," as it bears the gleba and is analogous to a pileus. There is no indusium. One of the egg sections at Berlin would at first view seem to have a rudimentary indusium, but on closely examining it I find it is a division of the stem, which in this instance seems to divide above and support the pileus in the manner of a *Helvella*. The pileus in the egg is so convoluted that my first impression (until I noticed that it bore the gleba) was that it was an indusium, and that here we had a type of a new genus of phalloid which had a veil but no pileus. Dr. Hennings first published it under Fischer's name, *Ithyphallus lauterbachii*. Afterwards he republished it as a new genus *Echinophallus*, basing it principally on the protuberances of the volva, a minor character, in my opinion. The main character of the plant, the strongly folded and convoluted pileus, is unique in this species and establishes, for me at least, the validity of Patouillard's genus *Clautriavia*, based on the same character, though in a much less developed form.

ITAJAHYA GALERICULATA (Figs. 21 and 22).—But one species of the genus is known, which is a native of Brazil, from whence it was well described and illustrated by Moeller. It has since been found there by Father Schupp. Robert E. Fries recently records the plant as common in Argentina, and it is probably frequent and widely distributed in South America.⁶ Our photographs and the sectional figure of the pileus are all that are necessary to enable one to recognize the plant.



Fig. 21.

ITAJAHYA GALERICU-
LATA.



Fig. 22.

ITAJAHYA GALERICU-
LATA. (Section.)

THE GENUS MUTINUS.

This genus is distinguished from Phallus, to which it was formerly united by having no distinct pileus, the gleba being borne on the upper portion of a simple stem. Sometimes the gleba-bearing por-

⁶ Mr. Fries suggests, not without reason, that it may be the original of Spegazzini's "new genus" *Alboffiella*, which if true is a prior name. In that case I submit, would it not be a rank injustice and a travesty on science to replace the excellent work done by Moeller, or his name, by the inaccurate work of Spegazzini?

tion is distinct from the stem, taking somewhat the nature of a distinct pileus, but in other species it is not clearly marked from the stem. The species of *Mutinus* are all very similar and are distinguished by their general form. All are red, or sometimes have white forms.

MUTINUS CANINUS (Fig. 23).—This, which is the only species of *Mutinus* that grows in Europe, has a short, distinct, spore-bearing portion, which is sharply distinct from the stem. I do not know whether it is a constant character, but I have seen alcoholic specimens where the receptacle was abruptly contracted and of a smaller diameter than the stem. The structure of the receptacle is always different, being of small, thick-walled cells, while those of the stem are large and thin-walled.⁷ *Mutinus caninus* is not rare and is widely spread in Europe. In the United States it is much rarer, and while I think it is well authenticated, it occurs principally in the Eastern States. The stem of *Mutinus caninus* is usually red, though white-stemmed forms have been figured on several occasions.

MUTINUS ELEGANS (Fig. 24).—In this species there is no distinction between the stem and the spore-bearing portion. It is all one uniform, cellular structure, with no sharp line of demarcation. The form is generally tapering from a thickened base to an acute apex. *Mutinus elegans* is the most common *Mutinus* that we have in the United States. It grows in the woods around old logs or soil rich in humus. It is not rare. The color is red or orange.

MUTINUS RAVENELII (Fig. 25).—This species has the same cellular structure as the preceding and has been held to be the same plant. I am satisfied it is distinct in form (usual) and habitat. The shape is club-form, thickened above, and tapering below. The habitat is old fields devoid of woods humus. It is a rare plant in the United States. The color is red.

MUTINUS BAMBUSINUS (Fig. 26).—Receptacle distinct from the stipe, formed of small cells. Color of both stipe and receptacle is red. This, which seems to be the common species of the tropics, is very similar to *Mutinus caninus* of Europe. However, it has a much longer spore-bearing portion and the color is brighter red. It was originally from Java, but occurs in the Celebes, Brazil, and no doubt in many tropical countries. It has been noted, adventitious, in the hot-houses at Kew.

MUTINUS FLEISCHERI (Fig. 27).—The most obese species of *Mutinus* known. It has a thick stem and a very short, contracted spore-bearing portion. Its structure is that of *Mutinus caninus*, of Europe, but it is a much more obese plant. It is known only from Java and is a rare plant there. The color is red.

⁷ This has always been my observation, and my understanding of the essential character of *Mutinus caninus*. I have recently seen at Berlin alcoholic specimens of eggs and sections of eggs of *Mutinus caninus* from Europe, where I can not note any difference in the cells of the stem and gleba-bearing portion.

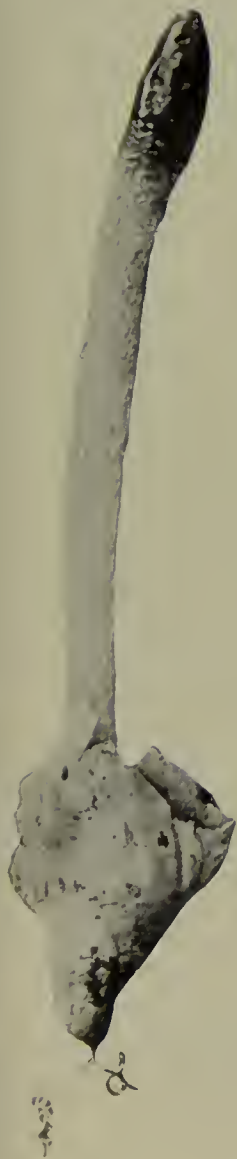


Fig. 23.

MUTINUS CANINUS.



Fig. 24.

MUTINUS ELEGANS.



Fig. 26.

MUTINUS BAMBUSINUS.

MUTINUS PENTAGONUS (Fig. 28).—All the previous species of Mutinus have cylindrical stems, but in this species the stem is pentagonal (or sometimes six-angled). The gleba-bearing portion is also strongly fluted, and the gleba is borne on the channels with free edges. In the genus *Lysurus* the lobes, when young, are connivent, and the young plants of *Lysurus Mokusin* evidently closely resemble this species. In *Mutinus pentagonus* I am convinced from an examination of dried specimens that there are no arms, but that the receptacle consists of a single piece. *Mutinus pentagonus* is known only from Australia, and but scantily there.

MUTINUS XYLOGENUS (Fig. 29).—This is the smallest phalloid known and an idea of its size can be obtained from our photograph, which is an enlargement six diameters. It is only known from a collection made in French Guiana many years ago, and preserved at Paris. It is a question whether it is a *Phallus* or a *Mutinus* (cfr. *Myc. Notes*, p. 336). If a *Mutinus*, it is not only the smallest species known, but differs from all other species in having a globose mass of gleba.



Fig. 25.

MUTINUS RAVENELII.



Fig. 29.

MUTINUS XYLOGENUS.
(Enlarged x6.)

DOUBTFUL AND LITTLE KNOWN SPECIES.

The same remarks apply here as under the same head concerning the genus *Phallus*. *Mutinus minimus*, *Mutinus borneensis*, *Mutinus proximus*, and *Jansia boninensis* may all prove to be the same plant.



Fig. 27.

MUTINUS FLEISCHERI.



Fig. 28.

MUTINUS PENTAGONUS.

MUTINUS MINIMUS (Fig. 103).—Known from a figure reconstructed from a dried or alcoholic specimen. Color, red. Seems to differ from others in its rugulose receptacle. Described from Tonkin.

MUTINUS BORNEENSIS (Fig. 104).—Figured from Borneo, in an Italian journal. Was said to have a white stipe and short red spore-bearing portion. We reproduce a figure from Tonkin.⁸

MUTINUS PROXIMUS.—Based on a dried specimen in the British Museum, from Ceylon. It is a small species, described as having a white stipe, but the plant is accompanied by a sketch showing an orange stipe. It seems to be close to *caninus*. It has not been figured.

MUTINUS CURTUS (Fig. 105).—Only known from one collection made in Australia sixty years ago, which seems to be immature. The figure reconstructed by Corda is no doubt inaccurate, especially as to the lobed volva.

MUTINUS PAPUASIUS (Fig. 106).—Known only from a figure from a dried specimen, from Australia. It is not known whether it is a *Mutinus* or a *Phallus*.

MUTINUS ARGENTINUS (Fig. 107).—This was originally published without illustration and was referred by Professor Fischer, doubtfully, to *Mutinus Muelleri*. The latter seems from Fischer's illustration to be *Mutinus bambusinus*, and is so referred by Moeller. Spegazzini has recently published a figure of *Mutinus argentinus* which seems to me quite different from *bambusinus*. It has a short, thick spore-bearing portion. From the figure one could not say it was not *Mutinus caninus* of Europe, though it is rather stocky for that.



Fig. 30.

JANSIA RUGOSA.
(Natural size.)



Fig. 32.

JANSIA ELEGANS.
(Natural size.)



Fig. 35.

JANSIA BONINENSIS.

⁸ In our account, *Myc. Notes*, p. 388, we confused *Mutinus borneensis* of Borneo with *Mutinus boninensis* of Bonin Island. Both are imperfectly known, but the latter seems to be a *Jansia*, and both may in time prove to be the same plant. Since we have seen the types of *Jansia boninensis* we think we have inaccurately referred here (page 402) a species of *Mutinus* from Japan.

THE GENUS JANSIA.

This is a genus of very small phalloids, common in Java and well illustrated by Penzig. The general form is that of a little *Mutinus*, but the spore-bearing portion is strongly differentiated from the stipe, and it is strongly rugulose or papillate. Two species occur in Java and have been well illustrated. They grew on rotten wood. There are two imperfectly known species, one from Bonin Island and one from Australia.

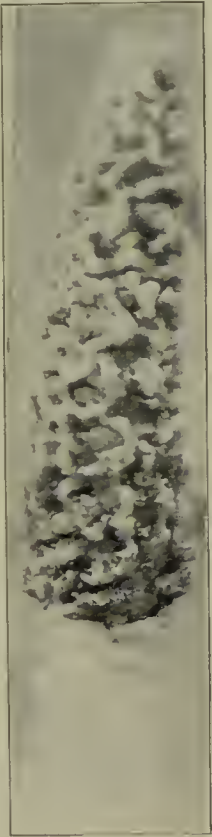


Fig. 31.

JANSIA RUGOSA.
(Enlarged.)



Fig. 33.

JANSIA ELEGANS.
(Enlarged.)

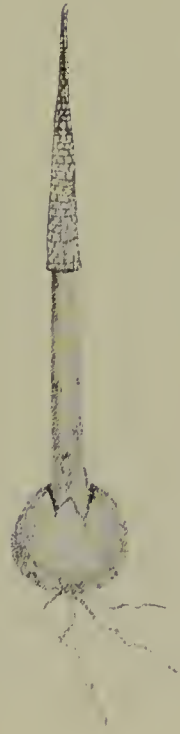


Fig. 34.

JANSIA ANNULATA.

JANSIA RUGOSA (Figs. 30 and 31).—This is a very small phalloid, which is common in Java. The short gleba-bearing portion is strongly distinct from the stipe and is strongly rugulose, as shown in our enlargement (Fig. 31). It is the only species of *Jansia* that is common and well known. This little plant is white and grows on rotten wood.

JANSIA ELEGANS (Figs. 32 and 33).—This species is also known only from Java and is rare, at least Dr. Bernard does not report it. It grows on rotten bamboo stems. It is of the same size

and appearance as the preceding little species, but the gleba-bearing portion is strongly covered with little processes, instead of being rugulose.

JANSIA ANNULATA (Fig. 34).—This plant is known only from a figure published from Australia. No specimen exists. The stipe is white, the gleba-bearing portion "red-ochre" and "annulated." The plant is therefore probably a *Jansia*, but this is not surely known.

JANSIA BONINENSIS (Fig. 35).—This species from Bonin Island, is only known, I think, with certainty, from one collection in alcohol. The gleba-bearing portion is slightly rugulose, and it seems intermediate between *Mutinus* and *Jansia*, being typically neither. The type collection is in alcohol in Berlin. I am not sure that *Mutinus minimus* and *Mutinus borneensis* are not both the same as this species.



Fig. 36a.

FLOCCOMUTINUS ZENKERI.

(Showing habits of plant.)



Fig. 36.

FLOCCOMUTINUS ZENKERI.

(Much enlarged.)

THE GENUS FLOCCOMUTINUS.

This genus is very curious and is intermediate between the pileate and non-pileate phalloids. The gleba covers a *loosely attached* network surrounding the stipe, and while *similar* to the veil of a *Phallus*, it is analogous to the *pileus* of a *Phallus*. The drawing by Professor Fischer (our figure 36) gives a good idea of this structure. The exact

attachment of this network I could not make out from the type owing to the minuteness of the parts, though that it is attached (loosely) in some manner is evident. It appears to me as a very distinct genus, essentially different in its basic structure from both the genera *Jansia* and *Mutinus*, with which it has been recently united.

FLOCCOMUTINUS ZENKERI (Figs. 36 and 36a).—But one collection of this curious genus is known, which is in alcohol in the museum at Berlin. It is accompanied by a colored sketch of the fresh plant, made by the collector, showing well its habits. We reproduce this drawing (Fig. 36a), though, owing to the difficulty of photographing colors, our figure does not do the drawing justice. In habits *Floccomutinus Zenkeri* is very similar to *Jansia elegans* of Java. The little plants are borne caespitose on a common, mycelial pad. The eggs are elongated in form and open at the apex. The volva is not accurately shown in Figure 36.

THE GENUS *LYSURUS*.

This genus has been very much misunderstood, though of a very simple structure. It consists of free arms borne on a hollow columnar stem. The gleba is borne on the arms. It has been shown that in the original species the gleba is borne on the outer side of the arms, hence species with gleba on the inner surface of the arms have been transferred to *Anthurus*, which genus does not have a columnar stem. I think it is much simpler to define *Lysurus* as originally defined, viz.: a columnar stem bearing free arms at the apex. With respect to the position of the gleba, there are evidently two series, and a new genus will probably be made for those with the gleba on the inner side of the arms. It has recently been shown by Mr. T. Petch, Ceylon, that the arms of *Lysurus Gardneri*⁹ (which was the second species known) are not entirely free, but are united by a delicate membrane. We would therefore modify the definition of the genus to include species with arms free or very slightly united.

⁹ Ever since the species was published there has been a difference of opinion as to whether the arms were united or not, a difference of opinion that was legitimate from the fact that the type specimens at Kew do not bear out the original statement in this respect. Before seeing the specimens Fischer decided they were united, and changed the classification on that account. Masee, who had the type in charge, writes: "The segments are not organically united at the tip, but during the young stage are closely pressed together, and having been dried in that condition appear to be united. When the mucilage is moistened the tips are found to be quite free and are normally so in several out of the twenty-three specimens in the herbarium." Knowing the direct divergence of opinion on the subject, I went very carefully into the question on my previous visit to Kew. Some of the specimens appear to have never been united (see photograph, Figure 38a, from one of the types), and while in many specimens they are convergent and covered with the gleba, I did not believe there was any union between them, and so published. I included them in *Lysurus*, where I think the plant is best classed, though as they are united it becomes necessary to modify the definition of this genus. Mr. Petch, who has observed two specimens fresh, finds the tips of the arms united by a delicate membrane, a fact that could not be told from the dried specimens at Kew. He puts it in the genus *Colus*, although it has no resemblance or analogy to that genus. In order to justify his name he changed the definition of the genus *Colus*, and gives it a definition that excludes from the genus the original and only species known to belong to it. I believe a man has a right to modify a definition of a genus to include species which he thinks should be classed in the genus, but he has no right to draw up his definition so as to exclude the original species and change the original idea entirely.

LYSURUS MOKUSIN (Fig. 37).—This is the original species of *Lysurus* and was one of the first foreign phalloids known. It was figured in 1774 by Father Cibot, a missionary in China. The stem is strongly fluted and bears free arms, which are also fluted. It has been found in several stations in China and Japan, but is unknown from other parts of the world. We have a drawing from Professor Gono, Japan, that shows a white stem and red arms. We do not know, however, that these colors are constant.

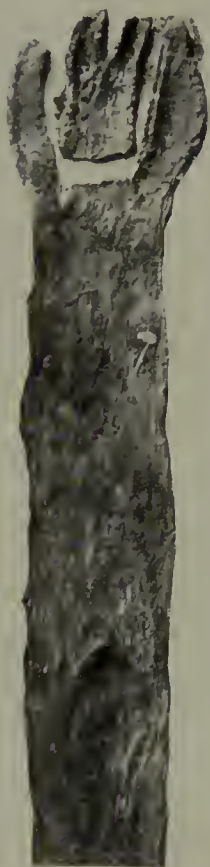


Fig. 38a

LYSURUS GARDNERI.
(Photo of a type.)



Fig. 39.

LYSURUS
AUSTRALIENSIS.
(From the type.)

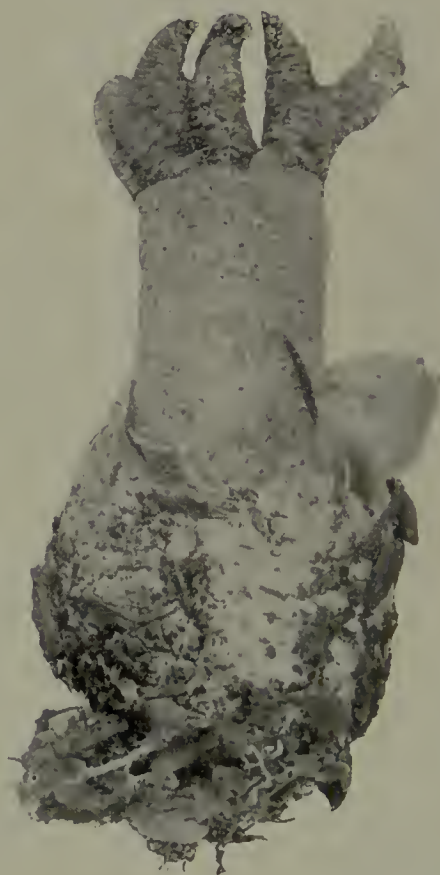


Fig. 40.

LYSURUS BOREALIS.
(Stocky form.)

LYSURUS GARDNERI (Figs. 38 and 38a).—This species has been known for many years only from the original collection from Ceylon, at Kew. It has been recently discovered in Ceylon by Mr. Petch, but is of rare occurrence and only recorded from the island. Mr. Petch's observations of the fresh plant show that the arms are united by a very distinct membrane, which would take it out of the genus *Lysurus* as formerly defined. As it was originally classed in this genus, however, and as its relations are evidently with the genus *Lysurus*, I think it better to modify the definition of the genus to in-



Fig. 37.
LYSURUS MOKUSIN.



Fig. 38.
LYSURUS GARDNERI.

clude it.¹⁰ The photograph of *Lysurus Gardneri*, as well as the dried specimens, has a close resemblance to the two following species, and I have heretofore believed that in time they would all three prove to be the same species. We must abandon this idea now that Professor Petch has demonstrated that the arms of *Lysurus Gardneri* are organically united, for they are entirely distinct in both of the following species.

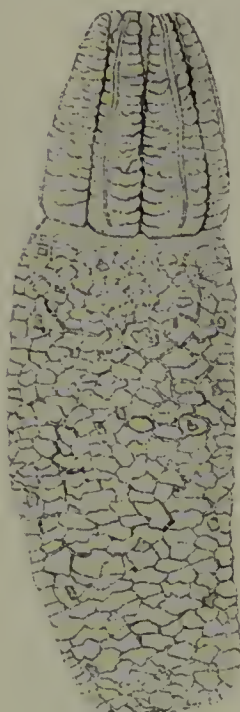


Fig. 42.

LYSURUS
CLARAZIANUS.



Fig. 43.

LYSURUS SANCTAE-
CATHERINAE.

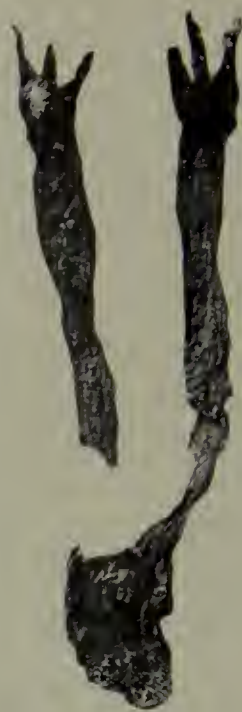


Fig. 45.

LYSURUS WOODII.
(From the co-type.)

LYSURUS AUSTRALIENSIS (Fig. 39).—One collection of a *Lysurus* from Australia is at Kew, published as above. How it differs from *Lysurus borealis* I do not know. Professor McAlpine has advised me of a red *Lysurus* in Australia, but I have not had further details. As I think the published figure of *Lysurus Australiensis* is overdrawn and inaccurate, I present a photograph of the type, which, while not satisfactory, is true as far as it goes.

LYSURUS BOREALIS (Figs. 40 and 41).—This is claimed to be distinct from the preceding, but I know no points of difference.

¹⁰ It has been classed in the genus *Colus*, but for me it has no characters in common with the genus *Colus*, which is a *clathrate* genus. It might be included in *Pseudocolus* according to the definition of that genus, but it is so different from all species of that genus I think it better not to so include it.



Fig. 45a.

LYSURUS (unnamed).
(The limb and an arm enlarged five times.)



Fig. 41.

LYSURUS BOREALIS.
(Slender form.)



Fig. 44.

LYSURUS CRUCIATUS.

It has a curious history in the United States and Europe and is supposed to be an introduced plant. It grows in gardens, sod, and other cultivated places. It occurs mostly in our Eastern States. In Europe it has been found in three localities, all in recent years. First by Dr. Hennings in Germany, then by Mr. Carleton Rea in England, and then by Mr. Harold Murray, of Manchester, England. Mr. Murray's plant has a white stem and red arms. Professor Long also advised me of a red *Lysurus* in Texas. We present two photographs, one a stocky plant from England, the other a slender specimen from the United States. We are told, however, that these same "stocky" forms occur in the United States.

LYSURUS CLARAZIANUS (Fig. 42).—This was a small plant, described from Argentina. It is red and small, but otherwise seems about the same as the preceding.

LYSURUS SANCTAE-CATHERINAE (Fig. 43).—This was based on a picture from Brazil. It seems to have the gleba in a globose mass on the center of the apex of the stipe rather than surrounding the arms. The color is red. It may be an *Anthurus*.

LYSURUS CRUCIATUS (Fig. 44).—A very small species with four arms, the gleba forming a ball on the top of the stem. It is only known from the original collection, which was from French Guiana, and is preserved at Paris. We present the original drawing in our illustration.

LYSURUS WOODII (Fig. 45).—This is a small, red species, imperfectly known from South Africa. Our photograph is made from the cotype at Kew. The arms are three or four and are "magnificent scarlet," the stem "waxy yellow." The specimens are from Mr. Wood and are the same as those named and figured by Kalchbrenner as *Anthurus Woodii*. While it is unsafe to draw conclusions from dried specimens, we believe the species is a *Lysurus* entirely distinct from the genus *Anthurus* and that Kalchbrenner misconceived and mis-drew the illustration. We, therefore, present a photograph of the dried specimen, which though a very poor illustration is better than an inaccurate drawing.

UNNAMED SPECIES (Fig. 45a).—We have received from F. M. Reader what is surely an unnamed species from Australia. It is a very small species, as will be seen by reference to our photograph, which is an enlargement four diameters. The limb is four-angled, enlarged above, and bears an arm at each angle. The color is red. The specimen sent us (in formalin) had evidently been cut in two pieces and these arms all broken off, so that we could not make much of a picture of it. We think it will be recognized, if found again by our Australian friends, and we do not name it. We hope some one in Australia will give a good photograph of it from the fresh plant and give it a name. We should be glad to have a perfect specimen in alcohol.

THE GENUS ANTHURUS.

Though largely confused with *Lysurus*, the genus *Anthurus* as originally proposed is very distinct. The stem is a *flaring tube*, the limb divided into segments, and it bears the gleba on the inner side of these segments. But one species is satisfactorily known, and that one is due to the work of Prof. D. McAlpine of Australia.



Fig. 46.

ANTHURUS ASEROEFORMIS.



Fig. 49.

ANTHURUS CALATHISCUS.
(The original drawing.)

ANTHURUS ASEROEIFORMIS (Fig. 46).—Professor McAlpine describes the plant as follows:

"Receptacle with hollow stem, expanding above into five arms, directed upwards and outwards. Stem salmon pink, slightly darker at top, fully three inches long, rugose with small depressions running more or less in lines and slight ridges running crosswise, so that it looks as if divided into a series of squares, about $\frac{1}{2}$ inch in diameter towards the tapering base and $\frac{7}{8}$ inch at top. Arms three inches long, merging into stem and tapering to a point, blood-red on inner face, convex and broken up into larger or smaller cavities, on outer face there is a continuation of the color of the upper portion of the stem and gradual darkening until toward the tip it is blood-red like inner face with thickened, slightly raised margins and central furrow broken up into small cavities.



Fig. 47.

ANTHURUS MUELLERIANUS.



Fig. 48.

ANTHURUS ARCHERI.

"Gleba blackish with tinge of bronze green, extending along the inner surface of each arm, but not covering the slender tip.

"Volva somewhat cup-shaped, about as long as broad ($1\frac{1}{2}$ inches) dirty-white, splitting at the apex, tapering towards the base and provided there with turfs of elongated fibrous roots.

"Spores hyaline, cylindrical to elongated ellipsoid, rounded at both ends, sometimes vacuolated but generally homogeneous contents, $6-8 \times 2\frac{1}{2}-3$ mic., occasionally 9 mic. long.

"A solitary specimen growing in a garden among violets, near Melbourne, Victoria, April, 1907. Forwarded by C. French, Jr. It had a very disagreeable smell. Owing to its fragile nature, one of the arms fell away and only the arm to the right in the photograph shows the slender tip."

This description, taken in connection with the photograph that Professor McAlpine sends, gives a perfect idea of the plant, and it is the only *Anthurus* that is really known.

ANTHURUS MUELLERIANUS (Fig. 47).—This, the original species of the genus, is known only from a drawing supposed to be quite inaccurate. It was from Australia, and the color was described as yellowish-red and shown bright red. I rather suspect that it was based on the same plant as the preceding.

ANTHURUS ARCHERI (Fig. 48).—This is known only from a figure, and that is doubtful. It was from Tasmania. It seems from the figure to be an *Anthurus*, but in the sectional drawing the arms are shown to be bifid, and it seems to incline toward the genus *Aseroe*.

ANTHURUS CALATHISCUS (Fig. 49).—The original of this species, as far as I can learn, is a crude figure found in the herbarium of Montagne from Perrottet, India. I think it was published as *Calathiscus Scpia*, and if so, then a most fantastic and imaginary figure was given of it. Perrottet gives the color as "jaune pale." No similar plant has since been sent from India, but his figure evidently is an *Anthurus*.¹¹



Fig. 51.

ASEROE PENTACTINA.



Fig. 53a.

ASEROE PALLIDA.

THE GENUS *ASEROE*.

Stem tubular, abruptly spreading into a horizontal limb, which is divided into a number of long, slender, usually bifid segments.

¹¹ Although I have hunted diligently for the original of the fantastic picture that for sixty years has embellished our phalloid literature, I have found no other evidence than the one reproduced Fig. 49. It has so little resemblance to the published figure that it does not seem possible to have been the source. It was from "Perrottet, India," and on a sheet with two other sketches taken by Perrottet to be different species, but which appear to me to be forms of the same. Montagne has endorsed this sheet "*Perrottet Calathiscus et Aseroe pentactina* Endl.," and it therefore seems to be the source of his "*Calathiscus*."

These are generally prolonged into long, slender points. The color of most species is bright red, and they are among the most showy phalloids. The genus is at home in Australia, where many forms occur. It also grows in Java and the East. No species is known from America or Europe, and it is vaguely known from Africa.¹² The species



Fig. 50.

ASEROE RUBRA.

all are very similar and have been reduced to two by Professor Fischer. However, the figures that are supposed to represent them seem so different that we would prefer to consider them distinct, at least until more is known about them. We believe, however, that there are three distinct species under which the forms should be arranged: *Aseroe rubra*, which includes the Australian forms and has a *narrow* limb; *Aseroe Zeylandica*, to which all the East Indian forms should be referred, and which has a *broad* limb; *Aseroe arachnoidea*, which is quite distinct from both the others.

¹² At Berlin there is a very imperfect dried specimen of *Aseroe* from Africa!! It is so poor that I would not wish to even venture on its form, but the occurrence of the genus in Africa is not recorded, I think, and is of interest.



Fig. 55.

ASEROE ARACHNOIDEA.



Fig. 52.

ASEROE HOOKERI.



Fig. 56.

ASEROE ARACH-
NOIDEA. (Section.)

ASEROE RUBRA (Fig. 50).—This was the original form known, and was from Australia. It has short, spreading rays. This exact form does not appear to have reached Europe since, but adventitious plants which are exactly the same have appeared in the hothouses at Kew.



Fig. 53.

ASEROE MUELLERIANA.

ASEROE PENTACTINA (Fig. 51).—From the specimens that reach Europe this form seems to be the most common form in Australia. It has a narrow limb and long, slender rays. The name, pentactina, referred to the number (five) of the rays of the original specimen, but the number varies and is of no importance.

ASEROE HOOKERI (Fig. 52).—This was a very small form with a short stem and narrow rays that came from New Zealand. It is the smallest form described and appears to me quite different from the others.

ASEROE MUELLERIANA (Fig. 53).—This form from Australia has a broad limb and a general resemblance to *Ascroë Zeylandica* of Ceylon. How-

ever, the rays are shorter and differently disposed. I think it is known only from the picture. It seems quite different in its broad limb from the other Australian forms, if any reliance can be placed on the picture.

ASEROE PALLIDA (Fig. 53a).—At Berlin I found a dried specimen of an Aseroe from New Caledonia sent by Monsieur Le Rat, with a drawing (Fig. 53a) that seems to be well made. It differs from the Australian form not only in its narrow segments but pale coloration. The stem is "pure white," the limb "pale rose." I think it is worthy of record as a marked form of this variable species.



Fig. 54.

ASEROE ZEYLANDICA.

ASEROE ZEYLANDICA (Fig. 54).—This species is originally from Ceylon and is the largest and most showy of the genus. The broad limb is divided into a number of segments, and the whole plant is bright red. It was collected many years ago in Java (and called

Aseroe Junghuhnii), but is very rare there and was not found by Penzig. It has recently been found again by Dr. Bernard, who has kindly sent us the fine photograph which we publish.

ASEROE LYSUROIDES.—This was figured by Corda from specimens from Australia. It has a long, slender stem and short, broad rays. Corda's figures appear to me to represent two different genera, hence I do not reproduce it as I think there is surely something wrong about it.

ASEROE ARACHNOIDEA (Figs. 55 and 56).—This species differs widely from all that precede. It has simple rays, not bifid, as all others. The color is white; all others are red. It was based on alcoholic material at Paris collected "sur fumier" in Cochin China, by Dr. Harmand. It has since been found abundantly in Java by Penzig and Dr. Bernard, though not on manure. The stem is hollow, and pervious at the top, and the arms crown the limb of the stem.

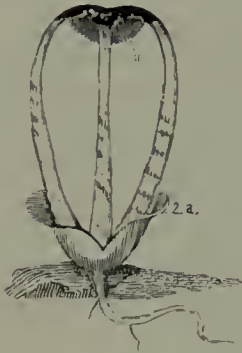


Fig. 59.

LATERNEA TRISCAPA.

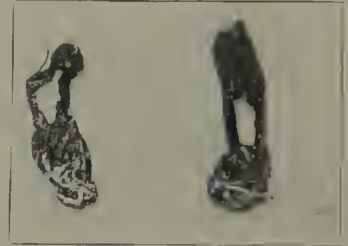


Fig. 60.

LATERNEA PUSILLA.

(From the type.)

THE GENUS *LATERNEA*.

This genus consists of columns (usually two to five) that are united at the top and bear the gleba clinging to the under side. It is chiefly an American genus, being very common in South America and Southern United States. There is one record from Africa and one species known from Japan.

LATERNEA COLUMNATA (Fig. 57 and 58).—Columns from three to five, usually four. When perfectly developed there is a groove on the outer surface. Color red, or perhaps also white. White plants have been figured from Chile and Africa that are probably the same thing. This is the original species of *Laternea*, and is the most common one. It is abundant in Southern United States and South America, and is also known from the West Indies and Hawaii.

LATERNEA TRISCAPA (Fig. 59).—This was the second species named, and is known only from the original figure. It is very much the same as *Laternea columnata* except its small size, and it may be only a small form.



Fig. 62.

LATERNEA ANGOLENSIS.



Fig. 61.

LATERNEA
RHACODES.



Fig. 58.

LATERNEA
COLUMNATA.

It came from the West Indies. The figure shows only three columns, and for a long time that was considered its specific character. It is well known, however, that the number of columns varies in other species and undoubtedly also in this.

LATERNEA PUSILLA (Fig. 60).—This is known from a single specimen from Cuba, preserved at Kew. The character of this specimen is the two columns and its exceedingly small size. As *Laternea pusilla* has never been found since and was never figured, we have used for our illustration a photograph of the type specimen. When these small *Laterneas* are known from more ample collections, it will probably not be possible to draw any line between *pusilla* and *triscapa* and perhaps also *columnata*.



Fig. 57.

LATERNEA COLUMNATA.



Fig. 63.

LATERNEA SPEGAZZINI.

LATERNEA RHACODES (Fig. 61).—In this species the inner cells of the columns are torn and lacerated, and on that account has been made into a new genus (*Blumenavia*). As the same character is afforded by more than one *Clathrus*, which are not separated on this account, we feel it better to include this in *Laternea*, with which it otherwise agrees. *Laternea rhacodes* was originally from Brazil, where it is reported to be common. It is not otherwise known.

LATERNEA ANGOLENSIS (Fig. 62).—This, from the picture, which is all that is known about it, is very similar to *columnata* except that the columns are more slender and reduced at the top, and the color is white. It is probably only a white form of *Laternea columnata*. It is the only record of the genus

Laternea in Africa and was from Angola. The recently described *Blumenavia usambarensis* from Africa is probably the same. The type is in alcohol at Berlin.

LATERNEA SPEGAZZINI (Fig. 63).—This, which we know only from a figure, differs from *Laternea columnata* in having the surface covered with papillate projections. It might well be made the type of a new genus. As far as known, it occurs only in Argentina, South America. The illustration shows only three columns, but the number probably varies.

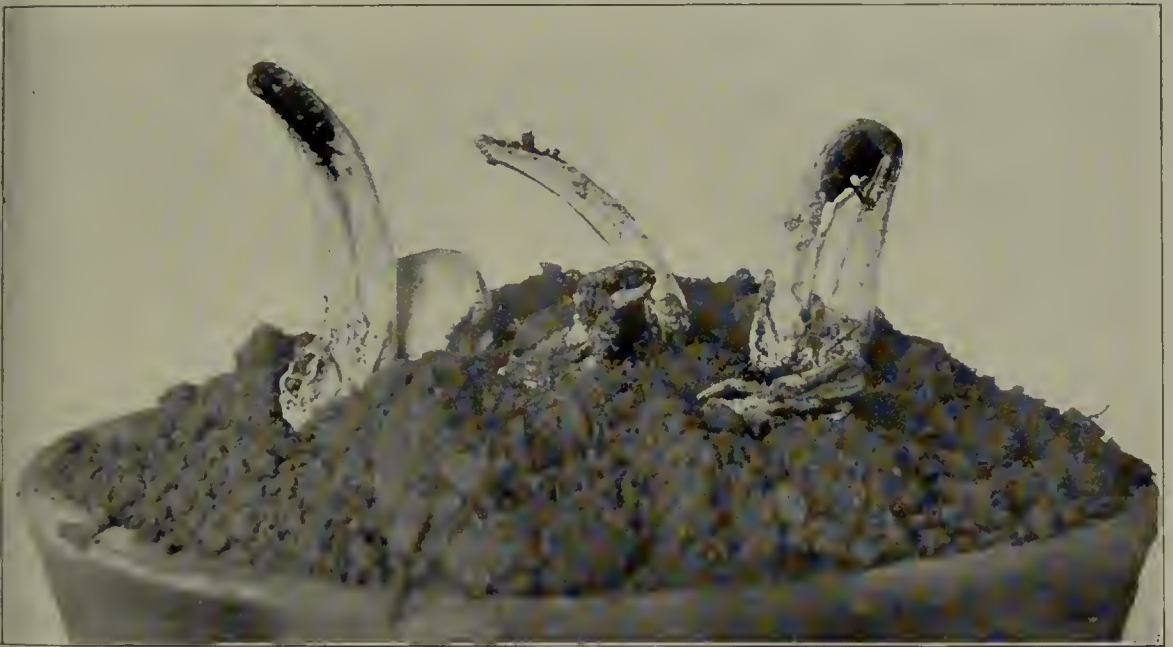


Fig. 64.

LATERNEA BICOLUMNATA.

LATERNEA BICOLUMNATA (Fig. 64).—Receptacle consists of two columns united at the top and free at the bottom. Columns slightly compressed, cylindrical, tapering above. Gleba attached to the under side of the columns near the apex. Color pale reddish. This species is known only from Japan and is the only *Laternea* recorded from that part of the world. We are under obligations to Professor Kusano for the photograph that we reproduce.

THE GENUS *PSEUDOCOLUS*.

The genus *Pseudocolus* consists of columns (three, as far as known) which are united at the top and at the bottom are consolidated into a stalk. In other words, it is a stipitate *Laternea*. The best known species are from Java and Brazil. Other and less perfectly known species occur in Australia, Reunion Island (Africa), Java, and Ceylon. All species of *Pseudocolus* appear to be very rare, and most of them are only known from a single record.

PSEUDOCOLUS GARCIAE (Fig. 65).—Receptacle consists of three tapering columns, slightly united at the top and bearing the gleba on the under side. Color, white. This is a rare species, known only from Brazil (Moeller) and rare there, for Father Rick has never found it.



Fig. 66.

PSEUDOCOLUS JAVANICUS.



Fig. 68.

**PSEUDOCOLUS
FUSIFORMIS.**

PSEUDOCOLUS JAVANICUS (Fig. 66).—From the illustration this seems to be very similar to the preceding species from Brazil. However, this is of a pale red color and grows in Java. It is a very rare plant and is only known from one specimen collected by Penzig. We reproduce Penzig's drawing, which is enlarged twofold from the plant.

PSEUDOCOLUS RUGULOSUS (Fig. 67).—Columns three, slender, united at the apex and into a short stipe at the base. The inner side of the columns are strongly rugulose, fluted. The stipe very short and included in the volva. *Color, red.* All that is known of this species is a figure preserved at Kew and made by Kurz in Java. It was referred to *Laternea triscapa*. If it exists at all it must be quite rare, for neither Penzig nor Dr. Bernard has found it.

PSEUDOCOLUS FUSIFORMIS (Fig. 68).—This species is based on a figure in the Museum at Paris, made on the Island of Reunion (near Madagascar). The plant is red; otherwise, our photograph of this figure (Fig. 68) is all that is known about it. If the plant was correctly drawn, as it seems to be, it appears to me to be very distinct from all the other species. Professor Fischer based the name *fusiformis* on this figure, afterwards withdrew it, referring the plant to *Pseudocolus Javanicus* of Java. That does not seem possible to me.



Fig. 67.

PSEUDOCOLUS RUGULOSUS.
(From the original sketch.)



Fig. 69.

PSEUDOCOLUS
ROTHAE.
(From the original
sketch.)

PSEUDOCOLUS ROTHAE (Fig. 69).—Columns three, slender, united above and below into a short stipe which does not extend beyond the volva. Color, rich orange. This species is represented at Kew by two collections from Australia. It seems very similar to the preceding from Java, but is evidently a much more slender species. As no other illustration of it is known, we give a copy of a crude sketch by Bailey, sent with the plant.



Fig. 65.

PSEUDOCOLUS GARCIAE.

THE GENUS CLATHRUS.

This genus has a receptacle consisting of a simple "sessile" network, bearing the gleba on the inner side. When young, the gleba forms a mass, filling the center of the egg; but as the plant expands, the gleba deliquesces and remains attached to the inner surface of the receptacle. The genus *Clathrus* as comprised in this pamphlet consists of two very distinct genera. *Clathrus* (true), with the receptacle composed of large cells, and *Ileodictyon*, with the receptacle formed of tubes. *Clathrus cancellatus* belongs to the former; *Clathrus cibarius* and *gracilis* to the latter. Where the other species belong we do not surely know, and hence do not attempt to maintain them as two genera.

CLATHRUS CANCELLATUS (Fig. 70).—Color, bright red. Meshes of the network subequal. Receptacle subglobose, composed of large cells, becoming torn and lacerate on the inner surface, the outer surface smooth, even. This well-known species is a native of Southern Europe. It is not rare in Italy and Southern France. It is a plant of warm regions and does not occur in Northern Europe except where the climate is modified by the Gulf Stream. It is found rarely on the channel coast, both of France and England, and even extends up into Holland. It occurs in Northern Africa, and has



Fig. 70.

CLATHRUS CANCELLATUS.



Fig. 71.

CLATHRUS AMERICANUS.



Fig. 74.

CLATHRUS
CAMERUNENSIS.

been collected at a few stations in Florida and Georgia in the United States. In our country it is rare, and only known with certainty from the South.

CLATHRUS AMERICANUS (Fig. 71).—Color, red. Receptacle, elongated. Meshes subequal above, elongated below. Outer surface slightly grooved, smooth. This is a species of Brazil and the West Indies. It reached me first from Father Schupp, of Brazil, who sent a photograph (Fig. 71) and a dried specimen. Then from



Fig. 72.

CLATHRUS TREUBII.

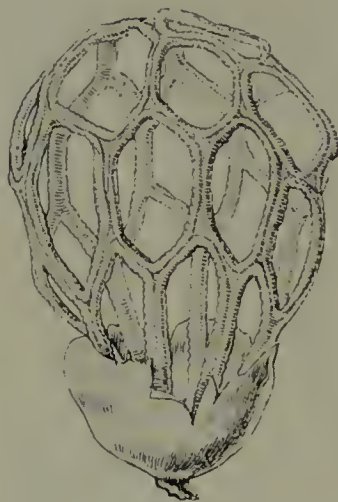


Fig. 73.

CLATHRUS PUSILLUS.

L. J. K. Brace, from the Bahamas, sent in liquid. In general form it appears to be very much like *Clathrus pusillus*, of Australia, but according to the original figure, that has much more slender branches. At Berlin I found a specimen (unnamed) from Paraguay.

CLATHRUS TREUBII (Fig. 72).—Color, bright red. Receptacle of large meshes above, below columned. The branches of the receptacle are *tubular*, smooth externally and corrugated on the inner surface. They are reduced in diameter above, and when old they

break apart, and the primary columns separate. *Clathrus Treubei* was recently described by Dr. Bernard, from Java. At Upsala there are alcoholic specimens collected in Java by E. Nyman, and an old specimen of the same collection was discovered at Berlin to be a new species of *Laternea* (pentactina).



Fig. 74a.

CLATHRUS CRISPATUS.

(Egg.)

CLATHRUS PUSILLUS (Fig. 73).—Color, bright ruby red. Meshes subequal above, elongated below. Branches of the receptacle wrinkled. This species is only known from the original collection made on the Swan River, Australia, more than sixty years ago. What is apparently a very good figure of it (Fig. 73) was given by Berkeley, though it seems to me the branches of the receptacle are more slender than is borne out by the specimens at Kew.

CLATHRUS CAMERUNENSIS (Fig. 74).—This species was described from Camerun, Africa, and figured. The figure appears to be very much the same as *Clathrus pusillus* from Australia, but the African plant is said to be dark olive and the Australian red. The type is in alcohol at Berlin. It seems to be an *Ileodictyon* with tubular arms. The most marked feature of it to me is the reduced diameter of the upper bars.

CLATHRUS CRISPATUS (Fig. 74a).—This species is only known from the elevated regions of Ceylon and is imperfectly known from there. It was

originally sent to Europe (dried specimens) many years ago, and referred to *Clathrus cancellatus*, to which it seems to have little resemblance. The net is composed of broad, flattened bars which form small meshes. The color is red. No photograph or drawing is known (in Europe) but it must be quite different in appearance from *Clathrus cancellatus*. We reproduce a photograph of an unopened egg. This has a tubercular surface, corresponding to the form of the enclosed net, and is a character not seen at all in the European species. At the British Museum there is a species from *Yucatan* (!) that seems to be this species. Mr. Petch, who has rarely seen it, writes me that the bars are flattened-triangular in section, the broad, flat surface exterior.

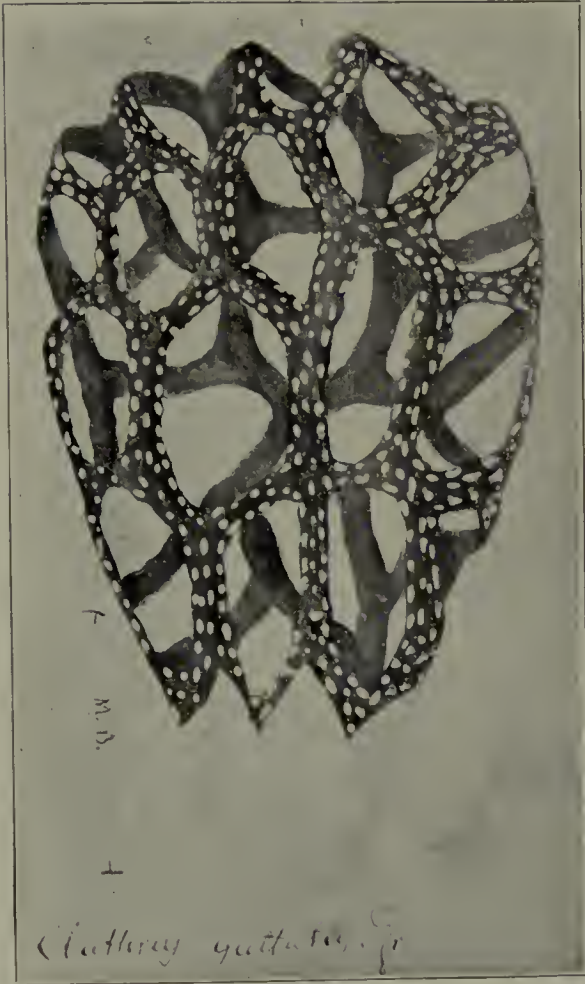


Fig. 75.

CLATHRUS GUTTULATUS.

CLATHRUS GUTTULATUS (Fig. 75).—Color, bright red. Branches of the net narrow, thin, smooth. They appear to be tubes. Color, bright red. Nothing is known of this species excepting the original figure in the collection of Fries. It was made by Oersted, from St. Thomas. The guttae appear to me to be spots of white lead on the drawing, intended to show the porous nature of the receptacle.

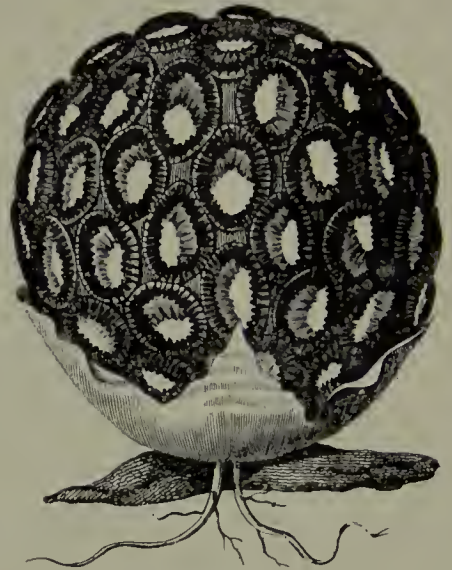


Fig. 76.

CLATHRUS CRISPUS.

CLATHRUS CRISPUS (Fig. 76).—Color, salmon. Receptacle, subglobose, with subequal meshes. Branches of the receptacle broad,

strongly wrinkled. This seems to be a frequent species in the West Indies and is recorded also from Mexico and South America. Plumier, two hundred years ago gave a crude but evident figure of it. Next it seems to have been very characteristically figured by Turpin (Fig. 76). It was sent to Berkeley from Uruguay. It has been recorded several times, mostly from the West Indies. No photograph is known, but the original drawing seems characteristic.



Fig. 77.

CLATHRUS PSEUDOCRISPUS (reduced one-third).

CLATHRUS PSEUDOCRISPUS (Fig. 77).—A figure (Fig. 77) of what is probably only a form of *Clathrus crispus* is found at Kew from Dr. McCatty, Montego Bay, Jamaica. It differs from *crispus*, as is shown by the figure, in having the meshes below elongated. Whether it is a distinct species, a distinct form, or whether *crispus* really has this character we do not know. The color as shown is dark red.

CLATHRUS PSEUDOCANCELLATUS.—This plant was named from Central Africa. It was orange-red and described as having broad, flattened branches. No figure has been given of it from which any idea whatever can be gained of the general appearance of the plant, nor could I form a much more definite idea from the types in alcohol at Berlin. They were probably originally in formalin as they have lost all definite form.

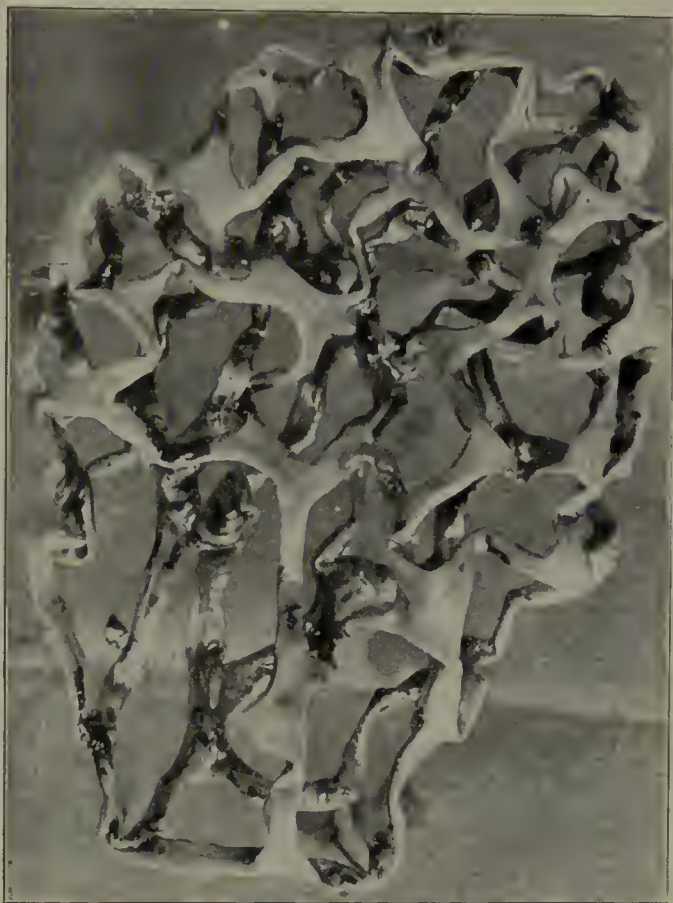


Fig. 79.

CLATHRUS GRACILIS.

CLATHRUS CIBARIUS (Fig. 78).—Color, white. Receptacle with smooth, tubular branches and large, pentagonal meshes. Our figure (78) will give an idea of the general appearance of this plant, but not of the size, for the photograph is evidently much reduced. The plant is four or five inches in diameter. It is a very common species in New Zealand, and it occurs rarely in Australia. It also grows in Chile, and a curious form has been collected in Brazil. It is said that the natives of New Zealand formerly employed the plant for food, hence the name.

CLATHRUS AFFINIS.—At the British Museum there is a specimen collected by G. A. Ramage, Pernambuco, Brazil, which is certainly a distinct form if not specifically distinct. It has the general appearance of *Clathrus*

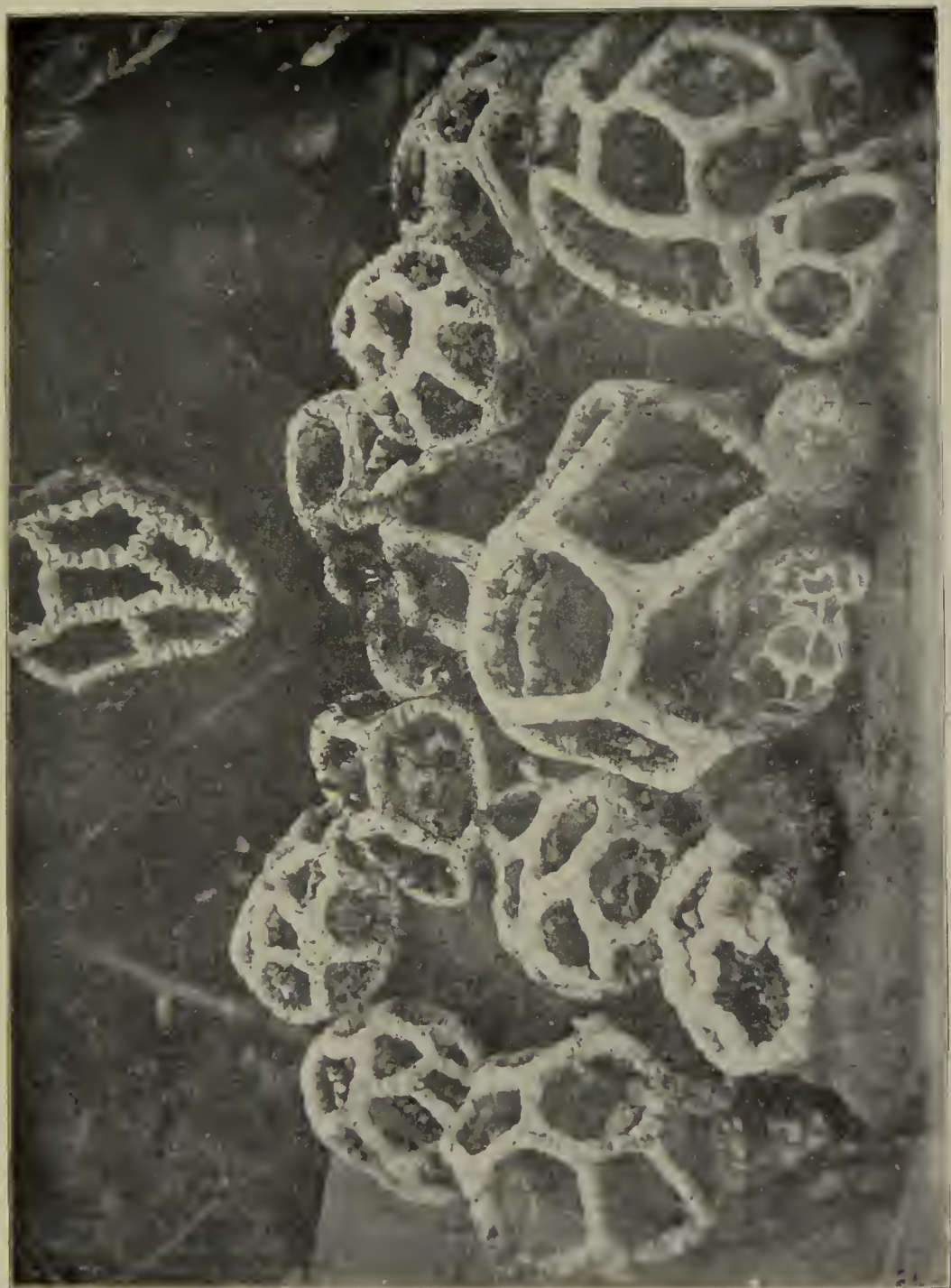


Fig. 78.

CLATHRUS CIBARIUS.
(Reduced about one-half.)

cibarius, but the arms of the upper meshes are narrower than those of the lower, and the latter are somewhat columnar, so that the lower meshes are elongated.

AFRICAN FORM(?).—At the British Museum there is a plant from Africa which, if not a form of *Clathrus cibarius*, is very close. There is a sketch with it which is yellowish (and I understand that the New Zealand type form is white), but otherwise it seems to be the same.

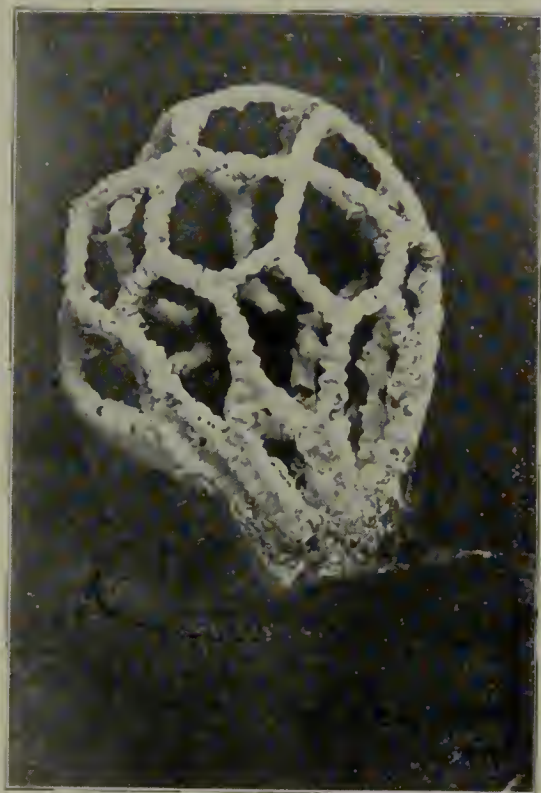


Fig. 80.

CLATHRUS CHRYSOMYCELINUS.



Fig. 81.

CLATHRUS PREUSSII.

CLATHRUS GRACILIS (Fig. 79).—Color white or pale. Receptacle large, globose, with large meshes. The branches of the mesh are flattened, very narrow and slender, and vary from 2 to 3 mm. in breadth. *Clathrus gracilis* is the most common phalloid in Australia. There are numerous collections at Kew, and it reaches me from several collectors. It is very much like *Clathrus cibarius* of New Zealand, in fact might be considered as a small form of it. It does not seem to occur in New Zealand. It is reported from South Africa, and at

Paris there is a very poor specimen, which has been called *Clathrus Fischeri*, but which appears to be *Clathrus gracilis*. The specimen is too poor to judge, however. Notwithstanding that *Clathrus gracilis* is the most common phalloid in Australia, we know of no photograph of it and have to resort to one made from alcoholic material, devoid of volva, which gives only a vague idea of the plant.

CLATHRUS CHRYSOMYCELINUS (Fig. 80).—Receptacle white, with large, polygonal meshes; those below somewhat lengthened. The receptacle arms are united at the base. Mycelium described as being bright golden yellow, hence the specific name. This species is only known from Brazil. Father Schupp finds it, and he writes me the mycelium is not always yellow.



Fig. 82.

CLATHRUS DELICATUS.

CLATHRUS PREUSSII (Fig. 81).—This species from Kamerun, Africa, is one of the few white species of *Clathrus* known. The receptacle has broad, flat arms that are more narrow above. The figure which was published by Fischer shows the plant with the volva cut away. It is only known from the original collection in alcohol at Berlin. The bars of the network are cellular (not tubular) and have a somewhat quadrilateral shape, different from all other known species of *Clathrus*.

CLATHRUS DELICATUS (Fig. 82).—This unique little *Clathrus* is the smallest of the genus and disputes with *Mutinus xylogenus* the distinction of being the smallest phalloid known. It occurs only in Ceylon as far as known. The color is white, and the structure of the arms is tubular, hence it should be included in the genus *Ileodictyon* if taken out of *Clathrus*. The gleba is collected in little globose masses at the nodes of the net.

THE GENUS SIMBLUM.

The genus *Simblum* can be described in a few words as being a *Clathrus* on a stalk. In most of the species known the meshes are more compact than is usual in *Clathrus*. The genus *Simblum* was

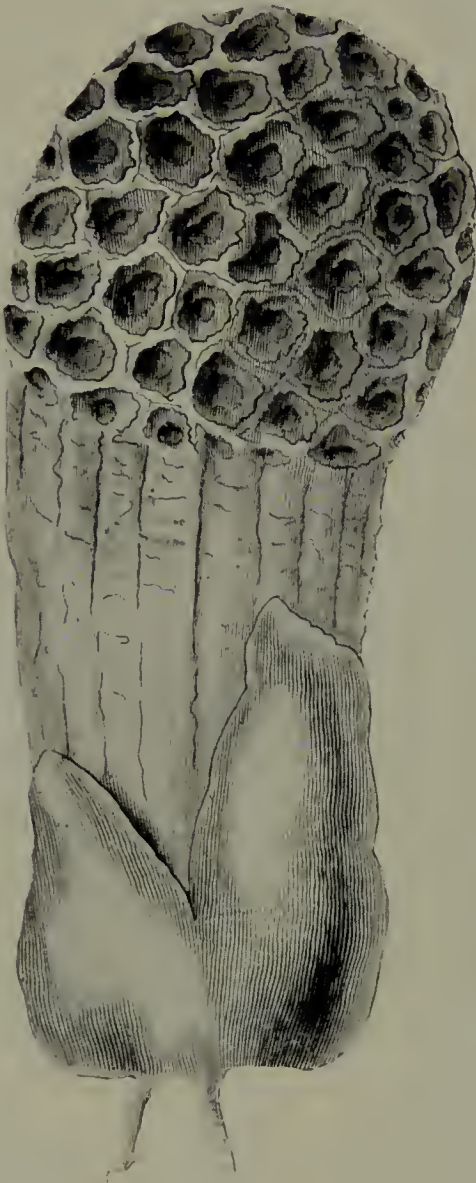


Fig. 83.

SIMBLUM PERIPHRAGMOIDES.



Fig. 87.

SIMBLUM MÜLLERI.

originally known from Mauritius, then from South America, Java, and finally from the United States. At Kew we found an unnamed species from Africa, and there is a doubtful one from Australia. It can be divided into two series according to the color, yellow and red, which seem distinct and do not run into each other. However, the red series has pale or white forms.



Fig. 84.

SIMBLUM GRACILE.



Fig. 85.

SIMBLUM TEXENSE.



Fig. 86.

SIMBLUM SPHAEROCEPHALUM.

SIMBLUM PERIPHRAGMOIDES (Fig. 83).—Volva, white. Stipe 3 to 4 inches long by 2 broad, hollow, striate, yellow. Receptacle globose, with small meshes, yellow. This species, which was originally from Mauritius, was sent to Hooker and published in 1831. It is evidently rare in Mauritius, for Dr. O'Connor, who resides there and has collected several other phalloids of this island, but lately found it. The following species, which is common in Java, I at first thought was distinct from its slender form, but at Upsala I have recently seen a series of alcoholic specimens from Java, some so much like the original specimens that I now think them to be one species.



Fig. 88.

SIMBLUM CLATHRATUM.

SIMBLUM GRACILE (Fig. 84).—This has all the characters of the previous excepting the slender form. It is yellow, with a globose head of small meshes. It is a very common species in Java, Ceylon, and India, and has been reported from China. I am convinced, from an examination of a series of alcoholic specimens from Java, at Upsala, that it can not be kept distinct from the preceding species.

SIMBLUM TEXENSE (Fig. 85).—This species, which is only known from Texas, has the same yellow color character as the preceding. It differs in the nature of the network (best shown in our figures) and in the clathrate portion abruptly contracted into the stipe. An excellent account of it has been given by Professor Long.

SIMBLUM SPHAEROCEPHALUM (Fig. 86).—This species differs from those that precede by being red, though pale or white forms occur. It was first noted in South America, where it is an extremely common plant. Then it was published from the United States,¹³ where it is rare, and it reached me from the Bahamas. In shape it is the same as *Simblum Texense*, and the photographs without color notes could not be told apart.

SIMBLUM MÜLLERI (Fig. 87).—This species, which is known from a drawing made from a dried specimen from Australia, is very different from all others in its open network. In its general appearance it is close to *Clathrus pusillus*, excepting that the clathrate portion is borne on a distinct though short stem. When the phalloids of Australia are well known, it may be found that *Clathrus pusillus* varies in this respect and that this is really only a stalked form.

SIMBLUM CLATHRATUM (Fig. 88).—Stem hollow, pale reddish tint, 2½ cm. thick x 7 cm. high. Receptacle a loose, clathrate structure, with large meshes to the net and slender branches. Color, bright red. The clathrate portion is fragile and easily broken. The specimen grew in the botanical garden at Old Calabar, Africa. It is the first red *Simblum* known from Africa, although the original species of the genus came from Mauritius. It was a yellow plant. The only similar plant known is *Simblum sphaerocephalum* from America, which differs widely in having a compact net of small meshes. The specimen and a colored drawing by J. W. Holland are at Kew.

THE GENUS COLUS.

This genus is a *Clathrus* supported on columns which are united at the base into a stipe. Only one species is known, and that only from the Mediterranean regions.

COLUS HIRUDINOSUS (Figs. 89 and 90).—This is a small phalloid, that, as far as is known, grows only in the Mediterranean regions. Originally from Corsica, it was named from Southern France. It has been found in Algeria, and Father Torrend, of Portugal, has recently discovered it abundant in the sand. In Corsica, the original observer stated, it grew only on manure, but the other records are from unnamed places. The color is red; the other characters are all those of the genus and are best shown in our photographs.

In some publications, the genus *Colus* includes plants that in my opinion have very little resemblance or relation to the original species. These we have separated under the name *Pseudocolus*.

¹³ The only stations known are Long Island, N. Y., Gerard; Nebraska, J. M. Bates; Kansas, E. E. Bartholomew; Washington, D. C., W. H. Scudder; Talbot County, Maryland, Chas. McIlvaine. When any one finds this rare plant in the United States I request that it be reported to me so that we can keep a record of its known stations.



Fig. 89.

COLUS HIRU-
DINOSUS.
(Natural size.)

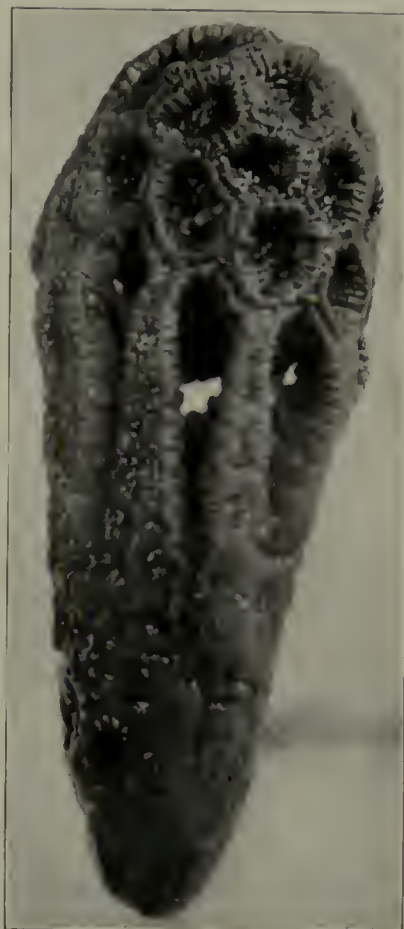


Fig. 90.

COLUS HIRUDINOSUS.
(Enlarged.)

THE GENUS KALCHBRENNERA.

This is a very peculiar genus, known only from South Africa, and but one species. It has a stipe bearing a clathrate structure similar to the genus *Simblum*, but from the net proceed large, knobbed projections.

KALCHBRENNERA CORALLOCEPHALA (Figs. 91 and 92).—The only species grows in South Africa, and there appears to be rather a frequent plant. It is a very showy plant, of a bright red color in all its parts. The gleba covers the outer portion of the net and to an extent hides the network. It was a number of years before its correct structure was known, and it was Kalchbrenner who made a good picture of it and first showed it.



Fig. 91.

KALCHBRENNERA CORALLO-
CEPHALA.



Fig. 92.

KALCHBRENNER CORALLOCEPHALA.
(Section.)

RELATED PLANTS.

It is a disputed question whether *Phallogaster saccatus* is a phalloid or not. It has no volva as other phalloids have, hence is excluded by some who are theorizing on such things. I do not believe that any one familiar with the fresh plant will ever place it anywhere except with the phalloids. It has the same greenish, fetid gleba that is associated with the phalloids, the same spores and basidia, and it deliquesces in the same way. It seems to me that its relations are entirely with the phalloids, notwithstanding it has no volva.

THE GENUS PHALLOGASTER.

Plants devoid of a volva, the gleba borne in the inner tissue. Peridium white, smooth. In ripening the inner tissue and gleba deliquesce, and the latter adheres to the inner side of the peridium, which breaks irregularly and exposes the adhering gleba.

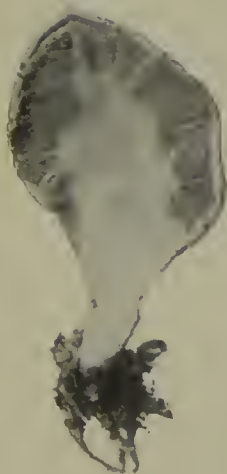


Fig. 93.

PHALLOGASTER SACCATUS.



Fig. 94.

PHALLOGASTER SACCATUS.

(After dehiscence.)

PHALLOGASTER SACCATUS (Figs. 93 and 94).—This species occurs only in the United States and Canada, as far as known, and it is a rare plant there. It has only been known for a few years. I think there can be no trouble in identifying it from our photographs. Another species has been recently published, which appears to me to be rather a depauperate form.

APPENDIX I.

GEOGRAPHICAL DISTRIBUTION.

The real study of the phalloids, as I view it, is the correct characters of the species, the simplest grouping of them into genera, and their distribution. We present a synopsis of the number of phalloids known to occur in various countries, and where the same species occurs in different countries it is included in each. We include as different phalloids all the various forms named in this pamphlet, and all the alleged species so named, whether doubtful or well known.

General Distribution.

When the subject is well known, I think, it will be found that several species are of very wide distribution, but at present we only know two.

Phallus indusiatus occurs without doubt in every tropical country of the world. We give on page 18 the countries from which we have seen specimens, and the list does not embrace perhaps half of the countries where it occurs.

Phallus rubicundus (under the names *aurantiacus*, *gracilis*, etc.) also seems to occur in most warm countries.

	Europe.	North America.	West Indies.	South America.	Australia and New Zealand.	Africa.	Ceylon and India.	Japan and China.	East Indies.
<i>Anthurus</i>, . . . . .	..	..	..	..	3	..	1	..	..
<i>Aseroe</i>, . . . . .	..	..	..	..	6	1	2	2	2
<i>Clathrus</i> ,	1	1	4	5	3	4	2	..	1
<i>Clautriavia</i>, . . . . .	..	..	..	..	1	..	1	..	1
<i>Colus</i> ,	1	..	..	..	..	1	..	..	..
<i>Floccomutinus</i>, . . . . .	..	..	..	..	..	1	..	..	..
<i>Itajahya</i>, . . . . .	..	..	..	1	..	..	..	..	..
<i>Jansia</i>, . . . . .	..	..	..	..	1	..	1	1	2
<i>Kalchbrennera</i>, . . . . .	..	..	..	..	..	1	..	..	..
<i>Laternea</i>, . . . . .	..	1	3	3	1(?)	1	..	1	..
<i>Lysurus</i> ,	1	1	..	3	2	1	1	1	..
<i>Mutinus</i> ,	1	3	..	3	3	..	1	2	3
<i>Phallogaster</i>, . . . . .	..	1	..	..	..	..	..	..	..
<i>Phallus</i> ,	2	5	2	8	10	6	3	5	9
<i>Pseudocolus</i>, . . . . .	..	..	..	1	1	1	..	..	2
<i>Sinblum</i>, . . . . .	..	2	1	1	1	2	..	..	1
Total,	6	14	10	25	31	19	12	12	21

Europe.

There are but six phalloids in Europe (including one form). *Phallus impudicus* is the most common and widespread. The form *Phallus imperialis* is rare and local. *Mutinus caninus* is not rare. *Clathrus cancellatus* is of a southern range. It occurs mostly in southern France, Italy, etc. *Colus hirudinosus* is confined to the Mediterranean region. It occurs in Corsica, Southern France, Portugal. *Lysurus borealis* is probably an introduced species. It is known from one collection in Germany and two in England.

United States and Canada.

We have fourteen phalloids in our country. *Phallus Ravenelii* and *Phallus duplicatus* are the most frequent. The form *Phallus imperialis*, which with us replaces *Phallus impudicus* of Europe, is of a Western range, found in California, Colorado, and Texas. But one Eastern station is known, Washington, D. C. *Mutinus elegans* is our most common *Mutinus* in rich woods. *Mutinus caninus* is an Eastern species, and *Mutinus Ravenelii* is local and rare. *Laterna columnata* is common in the South, and *Clathrus cancellatus* is very rare and only known with certainty from the South. *Phallus rubicundus* seems to be fairly common in the South. *Simblum sphaerocephalum* is very rare. A list of known stations is given on page 67. *Simblum Texense* is known only from Texas. *Lysurus borealis* seems to be an introduced plant. Of late years it has been found a number of times, chiefly in the East and in cultivated stations. *Phallogaster saccatus* is of rare occurrence. In addition I have a specimen in alcohol from Florida, species not sure, but probably *Phallus gracilis*.

West Indies.

The phalloids of the West Indies are not well known. Undoubtedly when well observed, several of the Brazilian species will be found in the West Indies. *Clathrus crispus* (and a doubtful form, *pseudocrispus*); *Clathrus Americanus*, recently found in the Bahamas by Mr. Brace; *Clathrus guttulatus*, known only from an old drawing; *Phallus indusiatus*, common; *Phallus rubicundus*, probably common; *Laterna columnata*, common; *Laterna pusilla*, known from one collection; *Laterna triscapa*, known only from an old drawing, and *Simblum sphaerocephalum*, recently collected in the Bahamas by Mr. Brace.

South America.

Most excellent work has recently been done on the phalloids of Brazil by Moeller, and to this work is due most of our knowledge of South American phalloids. He has published in a superb manner *Clathrus chrysomycelinus*, *Pseudocolus Garciae*, *Laterna columnata*, *Laterna rhacodes*, *Mutinus bambusinus*, *Phallus subtilis*, *Phallus glutinolens*, *Phallus indusiatus* (and a form, *Moelleri*), *Phallus callichrous* (which is probably only a color form of *indusiatus*), and *Itajahya galericulata*, a genus only known from South America.

Simblum sphaerocephalum is a most common phalloid in South America, but does not seem to have been found by Professor Moeller. *Clathrus Americanus* is a recent species from Rev. F. A. Schupp, Brazil.

Rev. J. Rick finds in his locality (Sao Leopolda) the following: *Simblum sphaerocephalum*, *Phallus indusiatus*, *Pseudocolus Garciae*, *Laterna columnata*, *Laterna rhacodes*, and *Clathrus Americanus*.

There have been several imperfectly known phalloids from South America. We would list *Phallus Farlowii*, *Mutinus australis*, *Lysurus Sanctae-Catherinae*, *Phallus roseus* (a form of *indusiatus*), *Mutinus xylogenus*, *Lysurus cruciatum*, *Phallus campanulatus*, *Lysurus Clarazianus*, *Clathrus affinis* (a form of *cibarius*, known only from a specimen in the British museum), *Laterna Spegazzini*, and *Laterna crispus*. In addition, several have been proposed by Spegazzini, but they are mostly only word-descriptions, and nothing can be told about them. For me an unillustrated phalloid has no place excepting in the rejected columns. There has also been a "new genus," *Alboffiella*, illustrated by Spegazzini. Professor Fischer has suggested, not without reason it seems to me, that it was based on a *Phallus* with an accidental volva cap. Robert E. Fries suggests it was based on *Itajahya galericulata*. If true, in either case, the work was very poorly done.

Australia and New Zealand.

I consider the phalloids of Australia and New Zealand for the most part very imperfectly and inaccurately known. The new species were mostly proposed forty or fifty years ago and illustrated by figures reconstructed from dried specimens, often inaccurate it seems to me, and nothing since has been learned of them. The subject has gotten into such a condition that the local workers in these countries seem to be able to make but very little of their species, and the result is there have been very few original papers by the mycologists of these countries. It is time our friends there observed their phalloids and gave us good accounts and photographs of them. If Australian mycologists will take as a model the photographs and account given on page 42 by Professor D. McAlpine, of *Anthurus aseroeformis*, and supply similar photographs and accounts, it will only be a few years until we have a much better knowledge of the subject.

The two most frequent phalloids are *Clathrus cibarius* and *Clathrus gracilis*, the former in New Zealand, the latter in Australia. Neither has been satisfactorily illustrated. *Anthurus aseroeformis*, a rare species but well known, due to Professor McAlpine. *Phallus indusiatus* is a frequent plant, but the forms and color forms are not worked out. The genus *Aseroe* is at home in Australia. It seems to take very different forms, but their value in classification is not known. With the exception of the above, I consider all the other Australian species more or less doubtful and little known, viz: *Phallus impudicus*, *Phallus rubicundus*, *Phallus multicolor*, *Phallus callichrous*, *Phallus Rochesterensis*, *Phallus discolor*, *Phallus calyptratus*, *Phallus retusus*, *Phallus quadricolor*, *Mutinus pentagonus*, *Mutinus curtus*, *Mutinus papuasius*, *Jansia annulata*, *Lysurus Australiensis*, *Lysurus* (unnamed), *Anthurus Muellerianus*, *Anthurus Archeri*, *Aseroe* (all the five recorded forms, *rubra*, *pentactina*, *Hookeri*, *Muelleriana*, *lysuroides*), *Laternea columnata* (very ??), *Pseudocolus Rothae*, *Clathrus pusillus*, *Simblum Mülleri*. In addition, there is a curious species, *Clautriavia Lauterbachii*, only known from an egg from the neighboring island of New Guinea, and a pale *Aseroe* (*pallida*) is recorded from New Caledonia.

Samoa.

I have spent two winters in Samoa and have hunted the fungi thoroughly. I am satisfied that *Phallus indusiatus* is the only common phalloid that grows on the island, and it is not at all rare. In the museum at Berlin is a specimen labeled *Clathrus gracilis* (and it seems to be correct), also a *Mutinus* (unnamable). Both genera must be very rare in Samoa, as I found neither.

Africa.

Many years ago *Simblum periphragmoides* was well illustrated from Mauritius, and was only recently found again. A slender form is very frequent in the East Indies. *Kalchbrennera corallocephala*, a most striking species, was well illustrated by Kalchbrenner thirty years ago. *Phallus indusiatus* is a common species and has reached me several times from Africa. *Colus hirudinosus* occurs in North Africa. *Lysurus Woodii*, *Laternea Angolensis*, *Phallus subacutus*, and *Phallus canariensis* were imperfectly published years ago, and nothing has been added to them since.

In recent years Africa has been a fertile field for "new species," but the work has not been done as it should have been. Such work would have passed forty years ago, but it is out of date now. The following have been added, mostly in this manner, in comparatively recent years: *Floccomutinus Zenkeri*, *Phallus rubicundus* (?), *Clathrus camerunensis*, *Clathrus pseudocancellatus*, *Clathrus Preussii*, *Clathrus gracilis* (?), *Simblum clathratum*, *Pseudocolus fusiformis*, *Phallus callichrous*, *Clathrus cibarius* (?). Fine specimens of many of these are in alcohol in the museum at Berlin.

Mr. Chas. O'Connor has been observing the phalloids of Mauritius. He finds the only common one to be *Phallus gracilis*. More rarely he has observed *Phallus indusiatus* and *Phallus Mauritianus*, a related plant. He has only recently rediscovered *Simblum periphragmoides* which was originally from Mauritius, but is very rare there.

Ceylon.

For many years we have had a very imperfect knowledge of the phalloids of Ceylon, but a very recent paper by T. Petch has set the matter right. The following species occur in Ceylon: *Jansia rugosa* (rare, and considered by Petch to be *Mutinus proximus*), *Mutinus proximus* (known only from dried specimens and sketch), *Phallus tenuis* (only previously known from Ceylon from dried specimen at Kew, but recently again reported from Ceylon), *Phallus indusiatus*, the most common phalloid and takes many color forms, viz: callichrous and multicolor), *Clautriavia merulina* (common in the Botanic Gardens at Peradeniya), *Simblum gracile*, common, *Lysurus Gardneri* (rare in Ceylon, but most abundantly represented in the museums at Kew, there being 25 specimens), *Aseroe Zeylandica*, rare in the elevated regions, *Aseroe arachnoidea*, very rare. In addition the unique little *Clathrus delicatus* is only known from Ceylon.

India.

Seventy years ago Perrottet sent Montagne a few phalloid sketches and dried specimens on which were based *Phallus rubicundus* (published as *aurantiacus*), *Anthurus Calathiscus* (supposed to have been very inaccurately published). In addition a few specimens of *Phallus indusiatus* have reached Europe from India, and these are all, I think, that are known from India. At the British Museum there are ten times as many specimens of extinct elephant remains from India as there are of the *live phalloids* that every naturalist in India must observe.

Mr. Hutchins writes me from North Bengal that *Phallus indusiatus* is common, but is the only phalloid he finds. Mr. G. H. Krumbiegel sent me from North Bengal a dried phalloid which, while I would not attempt to reconstruct it, I recognize as a genus unknown.

Java.

From no country in the world have we had a better account of the phalloids than from Java, which was published by Penzig. The following were well illustrated and described by him: *Mutinus bambusinus*, *Mutinus Fleischeri*, *Jansia elegans*, *Jansia rugosa*, *Phallus tenuis*, *Phallus costatus* (form?), *Phallus favosus* (form?), *Phallus indusiatus*, *Clautriavia merulina*, *Phallus multicolor*, *Simblum gracile* (form), *Pseudocolus Javanicus*, *Aseroe arachnoidea*.

Dr. Chas. Bernard has given us a good photograph and account of *Clathrus Treubei*, and has sent me a collection of the Javanese species in alcohol, from which some good photographs have been made.

Aseroe Zeylandica (under the name *Junghuhnii*) was published from Java many years ago, but is very rare and only rediscovered by Dr. Bernard recently. *Pseudocolus rugulosus* is based on an old drawing from Java, and no specimen is known. From the neighboring islands, *Mutinus borneensis* is vaguely described from Borneo and *Phallus celebicus* from the Celebes.

Dr. Chas. Bernard gives the following synopsis of the relative frequency of the phalloids he has observed in Java: *Mutinus bambusinus*, *Clautriavia merulina*, *Phallus indusiatus*, and *Simblum gracile* are common throughout the season, though more abundant, of course, during the rainy season. *Aseroe arachnoidea*, *Jansia elegans*, *Jansia rugosa*, *Phallus multicolor*, and *Clathrus Treubei* are rarer species and will probably only be found during the rainy season. *Aseroe Zeylandica* is a very rare phalloid and only recently rediscovered.

Japan.

An account of the phalloids of Japan was published in *Mycological Notes*, page 400. It was based on notes, drawings, and specimens from Professors Kusano, Gono, and Yasuda. The following were included: *Phallus indusiatus*, *Phallus impudicus*, *Phallus rugulosus*, *Phallus tenuis* (rare), *Jansia boninensis* (as *Mutinus*), *Lysurus Mokusin*, and *Laternea bicolumnata*. In addition, *Phallus rubicundus* under the name *aurantiacus* has been said to grow in Japan.

China.

Little is known as to the phalloids of China, although *Lysurus Mokusin* from China was among the first foreign phalloids figured.

Some alcoholic specimens were sent to Patouillard at Paris a few years ago from Tonkin, and the following species recorded: *Aseroe Zeylandica*, *Phallus indusiatus*, *Phallus gracilis*, *Mutinus bambusinus*, *Mutinus minimus*, *Mutinus borneensis*.

APPENDIX II.

LOST, STRAYED, OR STOLEN.

The following phalloids have not been heard from since they were originally exploited and grave fears are entertained as to their survival. Vague rumors have been circulated of one or two of them having been seen, but when traced to the source have usually resulted from a mistaken identification. Any one noticing a stray phalloid in their neighborhood is requested to seize it and send it in with such notes and marks as may lead to its identification.

	Whence Exploited	Has not been heard from for
<i>Anthurus Müllerianus</i>	Australia	Thirty years.
<i>Anthurus Archeri</i>	Australia	Fifty years.
<i>Anthurus Calathiscus</i>	India	Sixty-eight years.
<i>Clathrus pusillus</i>	Australia	Sixty-five years.
<i>Laternea pusilla</i>	Cuba	Forty years.
<i>Laternea triscapa</i>	West Indies	Eighty-seven years.
<i>Laternea angolensis</i>	Africa	Forty years.
<i>Lysurus cruciatus</i>	French Guiana	Sixty-five years.
<i>Lysurus Clarazianus</i>	South America	Thirty-six years.
<i>Lysurus Sanctae Catherinae</i>	South America	Twenty years.
<i>Lysurus Woodii</i>	South Africa	Thirty years.
<i>Mutinus curtus</i>	Australia	Sixty-five years.
<i>Mutinus papuasius</i>	Australia	Thirty years.
<i>Mutinus discolor</i>	Australia	Thirty years.
<i>Mutinus xylogenus</i>	French Guiana	Fifty-five years.
<i>Phallus Daemonum</i>	Amboy	One hundred and sixty-six years.
<i>Phallus quadricolor</i>	Australia	Twenty-six years.
<i>Phallus calyptratus</i>	Australia	Twenty-six years.
<i>Phallus retusus</i>	Australia	Twenty-five years.
<i>Phallus subuculatus</i>	North Africa	Sixty years.
<i>Pseudocolus fusiformis</i>	Reunion	Thirty years.
<i>Simblum Mülleri</i>	Australia	Twenty years.

APPENDIX III.

SYNONYMS.

There have been nearly three hundred names proposed for phalloids and only about one hundred have been retained in this pamphlet. The other two-thirds are, in our opinion, superfluous. It is an easy matter to propose a new name, but when once proposed it is impossible to ever get rid of it. Writers can refer it to "synonymy" all they please, but the next man that comes along has to dig it up and go all over it again, for no two men ever agree as to all the details, and each man is entitled to his own opinion.

Many of the following names are the discoveries made by those who discover "new species," which seem to me to have been "new" chiefly to the discoverer. A large part of the synonyms are from changing plants from one genus to another or making new genera out of sections of old genera. Personally we do not maintain many of these innovations, for the old established genera seem better to us. Of the new genera proposed in the last twenty years we only maintain *Itajahya*, *Jansia*, *Phallogaster*, *Clautriavia*, *Floccomutinus*, and *Pseudocolus*. (The latter we had the assurance to propose ourselves.) Professor Fischer has worked over this same ground and reduced many of these same names to synonymy, and while we agree with him in many instances we have copied him in none, for in every case we have looked up the evidence and formed our own opinion. We have not been as free as he in reducing species, for perhaps twenty names recognized as good in this pamphlet Professor Fischer puts in synonymy. While we suspect many of these have little value, we give them, in all instances, the benefit of the doubt.

There is one class of "new species" exploiters that I have not bothered much with—those who propose new species without illustrating them. In a subject such as the phalloids, where a good illustration tells most of the story, there is no excuse for any one to try to describe a phalloid in words. It ought to be a recognized crime, with a heavy penalty. Such species are listed here as "*Nomina nuda*." The phalloid fakers who fake up pictures are perhaps worse. The following names are those which in our opinion should be placed in synonymy and the reasons.

<i>Anthurus australiensis</i>	See <i>Lysurus</i> .
<i>Anthurus borealis</i>	See <i>Lysurus</i> .
<i>Anthurus Clarazianus</i>	See <i>Lysurus</i> .
<i>Anthurus cruciatus</i>	See <i>Lysurus</i> .
<i>Anthurus Sanctae Catherinae</i>	See <i>Lysurus</i> .
<i>Anthurus trifidus</i>	<i>Nomen nudum</i> .
<i>Anthurus Woodii</i>	See <i>Lysurus</i> .
<i>Aporophallus subtilis</i>	See <i>Phallus</i> .
<i>Alboffiella argentina</i>	Supposed to be a break.
<i>Aseroe actinobolus</i>	= <i>Aseroe pentactina</i> .
<i>Aseroe Ceylanica</i>	See <i>Aseroe Zeylandica</i> .
<i>Aseroe Calathiscus</i>	See <i>Anthurus</i> .
<i>Aseroe corrugata</i>	<i>Nomen nudum</i> .
<i>Aseroe Junghuhnii</i>	= <i>Aseroe Zeylandica</i> .
<i>Aseroe multiradiata</i>	= <i>Aseroe Zeylandica</i> probably.
<i>Aseroe viridis</i>	= <i>Aseroe Hookeri</i> .
<i>Aserophallus cruciatus</i>	See <i>Lysurus</i> .
<i>Blumenavia rhacodes</i>	See <i>Laternea</i> .
<i>Blumenavia usambarensis</i>	= <i>Laternea angolensis</i> (?).
<i>Calathiscus Sepia</i>	See <i>Anthurus Calathiscus</i> .
<i>Calathiscus Puiggarii</i>	<i>Nomen nudum</i> .
<i>Caromyxa elegans</i>	See <i>Mutinus</i> .
<i>Clathrella camerunensis</i>	See <i>Clathrus</i> .
<i>Clathrella crispa</i>	See <i>Clathrus</i> .
<i>Clathrella chrysomycelina</i>	See <i>Clathrus</i> .
<i>Clathrella delicata</i>	See <i>Clathrus</i> .

<i>Clathrella</i> <i>Muelleri</i>	See <i>Simblum</i> .
<i>Clathrella</i> <i>pseudocancellata</i>	Nomen nudum.
<i>Clathrella</i> <i>Preussii</i>	See <i>Clathrus</i> .
<i>Clathrella</i> <i>pusilla</i>	See <i>Clathrus</i> .
<i>Clathrella</i> <i>Treubei</i>	See <i>Clathrus</i> .
<i>Clathrus</i> <i>angolensis</i>	See <i>Laterna</i> .
<i>Clathrus</i> <i>albidus</i>	= <i>Clathrus gracilis</i> .
<i>Clathrus</i> <i>australis</i>	Nomen nudum.
<i>Clathrus</i> <i>Baumii</i>	Nomen nudum.
<i>Clathrus</i> <i>Berkeleyi</i>	= <i>Laterna pusilla</i> .
<i>Clathrus</i> <i>Brasiliensis</i>	= <i>Laterna columnata</i> .
<i>Clathrus</i> <i>columnatus</i>	See <i>Laterna</i> .
<i>Clathrus</i> <i>columnarius</i>	= <i>Laterna columnata</i> .
<i>Clathrus</i> <i>Fischeri</i>	= <i>Clathrus gracilis</i> (?)
<i>Clathrus</i> <i>hirudinosus</i>	See <i>Colus</i> .
<i>Clathrus</i> <i>intermedius</i>	Nomen nudum.
<i>Clathrus</i> <i>parvulus</i>	Too poorly illustrated.
<i>Clathrus</i> <i>pseudocancellatus</i>	Nomen nudum.
<i>Clathrus</i> <i>Tepperianus</i>	= <i>Clathrus gracilis</i> .
<i>Clathrus</i> <i>triscapus</i>	See <i>Laterna</i> .
<i>Clathrus</i> <i>trilobatus</i>	= <i>Laterna columnata</i> .
<i>Colus</i> <i>fusiformis</i>	See <i>Pseudocolus</i> .
<i>Colus</i> <i>Garciae</i>	See <i>Pseudocolus</i> .
<i>Colus</i> <i>Gardneri</i>	See <i>Lysurus</i> .
<i>Colus</i> <i>Javanicus</i>	See <i>Pseudocolus</i> .
<i>Colus</i> <i>Muelleri</i>	See <i>Simblum</i> .
<i>Colus</i> <i>Rothae</i>	See <i>Pseudocolus</i> .
<i>Columnaria</i> <i>truncata</i>	Rafinesque's ravings.
<i>Columnaria</i> <i>urceolata</i>	Rafinesque's ravings.
<i>Corynites</i> <i>brevis</i>	= <i>Mutinus Ravenelii</i> .
<i>Corynites</i> <i>Curtisii</i>	= <i>Mutinus elegans</i> .
<i>Corynites</i> <i>elegans</i>	See <i>Mutinus</i> .
<i>Corynites</i> <i>Ravenelii</i>	See <i>Mutinus</i> .
<i>Cryptophallus</i> <i>albiceps</i>	= <i>Phallus imperialis</i> .
<i>Cynophallus</i> <i>bambusianus</i>	See <i>Mutinus</i> .
<i>Cynophallus</i> <i>caninus</i>	See <i>Mutinus</i> .
<i>Cynophallus</i> <i>papuasius</i>	See <i>Mutinus</i> .
<i>Dictybole</i> <i>texensis</i>	A phalloid fake.
<i>Dictyophallus</i> <i>aurantiacus</i>	= <i>Phallus rubicundus</i> .
<i>Dictyophallus</i> <i>discolor</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>bicampanulata</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>brasiliensis</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>Braunii</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>callichrous</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>campanulata</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>chlorocephala</i>	= <i>Phallus callichrous</i> .
<i>Dictyophora</i> <i>collaris</i>	= <i>Phallus duplicatus</i> .
<i>Dictyophora</i> <i>Daemonum</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>duplicata</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>echinata</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>Farlowii</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>irpicina</i>	= <i>Clautriavia merulina</i> .
<i>Dictyophora</i> <i>Lilloi</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>merulina</i>	See <i>Clautriavia</i> .
<i>Dictyophora</i> <i>multicolor</i>	See <i>Phallus</i> .
<i>Dictyophora</i> <i>nana</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>phalloidea</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>radicata</i>	= <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>rosea</i>	= <i>Phallus indusiatus</i> (form).
<i>Dictyophora</i> <i>speciosa</i>	See <i>Phallus indusiatus</i> .
<i>Dictyophora</i> <i>subuculata</i>	See <i>Phallus</i> .

<i>Dictyophora tahitensis</i>	= <i>Phallus indusiatus</i> .
<i>Echinophallus Lauterbachii</i>	See <i>Clautriavia</i> .
<i>Floccomutinus Nymnianus</i>	= <i>Jansia rugosa</i> .
<i>Foetidaria coccinea</i>	= <i>Simblum sphaerocephalum</i> .
<i>Hymenophallus alboindusiatus</i>	= <i>Phallus indusiatus</i> .
<i>Hymenophallus brasiliensis</i>	= <i>Phallus indusiatus</i> .
<i>Hymenophallus duplicatus</i>	See <i>Phallus</i> .
<i>Hymenophallus Hadriani</i>	= <i>Phallus impudicus</i> .
<i>Hymenophallus indusiatus</i>	See <i>Phallus</i> .
<i>Hymenophallus radicans</i>	= <i>Phallus indusiatus</i> .
<i>Hymenophallus roseus</i>	= <i>Phallus indusiatus</i> (form).
<i>Hymenophallus speciosus</i>	= <i>Phallus indusiatus</i> .
<i>Hymenophallus subuculatus</i>	See <i>Phallus</i> .
<i>Hymenophallus tahitensis</i>	= <i>Phallus indusiatus</i> .
<i>Hymenophallus tunicatus</i>	= <i>Phallus duplicatus</i> .
<i>Hymenophallus togatus</i>	= <i>Phallus indusiatus</i> .
<i>Illeodictyon cibarium</i>	See <i>Clathrus</i> .
<i>Illeodictyon gracile</i>	See <i>Clathrus</i> .
<i>Ithyphallus aurantiacus</i>	= <i>Phallus rubicundus</i> .
<i>Ithyphallus Balansoe</i>	= <i>Phallus rubicundus</i> .
<i>Ithyphallus calyptratus</i>	See <i>Phallus</i> .
<i>Ithyphallus campanulata</i>	See <i>Phallus</i> .
<i>Ithyphallus canariensis</i>	See <i>Phallus</i> .
<i>Ithyphallus celchicus</i>	See <i>Phallus</i> .
<i>Ithyphallus coralloides</i>	= <i>Phallus rubicundus</i> .
<i>Ithyphallus costatus</i>	See <i>Phallus</i> .
<i>Ithyphallus cucullatus</i>	= <i>Phallus Ravenelii</i> .
<i>Ithyphallus favosus</i>	See <i>Phallus</i> .
<i>Ithyphallus glutinolens</i>	See <i>Phallus</i> .
<i>Ithyphallus impudicus</i>	See <i>Phallus</i> .
<i>Ithyphallus Lauterbachii</i>	See <i>Clautriavia</i> .
<i>Ithyphallus Muellerianus</i>	= <i>Phallus retusus</i> .
<i>Ithyphallus Novae Hollandiae</i>	= <i>Phallus gracilis</i> .
<i>Ithyphallus purpuratus</i>	= <i>Phallus imperialis</i> .
<i>Ithyphallus quadricolor</i>	See <i>Phallus</i> .
<i>Ithyphallus Ravenelii</i>	See <i>Phallus</i> .
<i>Ithyphallus retusus</i>	See <i>Phallus</i> .
<i>Ithyphallus rubicundus</i>	See <i>Phallus</i> .
<i>Ithyphallus rugulosus</i>	See <i>Phallus</i> .
<i>Ithyphallus sanguineus</i>	= <i>Phallus rubicundus</i> ?
<i>Ithyphallus tenuis</i>	See <i>Phallus</i> .
<i>Jansia Nymniana</i>	= <i>Jansia rugosa</i> .
<i>Jansia Zenkeri</i>	See <i>Floccomutinus</i> .
<i>Kalchbrennera Tuckii</i>	= <i>Kalchbrennera corallocephala</i>
<i>Kirchbaumia imperialis</i>	See <i>Phallus</i> .
<i>Laternea australis</i>	Nomen nudum.
<i>Laternea pentactina</i>	= <i>effete Clathrus Treubii</i> .
<i>Lysurus Archeri</i>	See <i>Anthurus</i> .
<i>Lysurus argentinus</i>	Nomen nudum.
<i>Lysurus aseroeformis</i>	See <i>Anthurus</i> .
<i>Lysurus Beauvaisi</i>	= <i>Lysurus Mokusin</i> .
<i>Lysurus corallocephalus</i>	See <i>Kalchbrennera</i> .
<i>Lysurus pentactinus</i>	= <i>Anthurus Archeri</i> .
<i>Lysurus Texensis</i>	Nomen nudum.
<i>Mutinus annulatus</i>	See <i>Jansia</i> .
<i>Mutinus boninensis</i>	See <i>Jansia</i> .
<i>Mutinus bovinus</i>	= <i>Mutinus elegans</i> .
<i>Mutinus brevis</i>	= <i>Mutinus Ravenelii</i> .
<i>Mutinus Curtisii</i>	= <i>Mutinus elegans</i> .
<i>Mutinus discolor</i>	See <i>Phallus</i> .
<i>Mutinus elegans</i> (of Java only)	See <i>Jansia</i> .

Mutinus Muelleri	=Mutinus bambusinus.
Mutinus Nymnianus	=Jansia rugosa.
Mutinus proximus	Nomen nudum.
Mutinus proximus (in sense of Petcl)	=Jansia rugosa.
Mutinus Watsoni	Nomen nudum.
Mutinus Zenkeri	See Floccomutinus.
Omphalophallus Muellerianus	=Phallus retusus.
Omphalophallus retusus	See Phallus.
Phallogaster whitei	=depauperate Phallogaster saccatus.
Phallus aurantiacus	=Phallus rubicundus.
Phallus bambusinus	See Mutinus.
Phallus brasiliensis	=Phallus indusiatus.
Phallus caninus	See Mutinus.
Phallus collaris	=Phallus duplicatus.
Phallus curtus	See Mutinus.
Phallus foetidus	=Phallus impudicus.
Phallus Hadriani	Based on a freak.
Phallus irpicinus	=Clautriavia merulina.
Phallus inodoratus	=Phallus impudicus.
Phallus iosmos	=Phallus impudicus.
Phallus merulinus	See Clautriavia.
Phallus Mokusin	See Lysurus.
Phallus Muellerianus	=Phallus retusus.
Phallus Novae Hollandiae	=Phallus gracilis.
Phallus purpuratus	=Phallus imperialis.
Phallus radicans	=Phallus indusiatus.
Phallus sanguinarius	=Phallus rubicundus (?).
Phallus senegalensis	=Imagination chiefly.
Phallus speciosus	=Phallus indusiatus.
Phallus tahitensis	=Phallus indusiatus.
Phallus truncatus	=Mutinus unknown.
Phallus tunicatus	=Phallus indusiatus.
Phallus Watsoni	Nomen nudum.
Phallus xylogenus	See Mutinus.
Protuberia Maracuja	(Not for me a phalloid.)
Satyrus rubicundus	See Phallus.
Simblum australe	=Simblum sphaerocephalum.
Simblum flavescens	=Simblum gracile.
Simblum Lorentzii	=Simblum sphaerocephalum.
Simblum pilidiatum	=Simblum sphaerocephalum.
Simblum rubescens	=Simblum sphaerocephalum.
Sophronia brasiliensis	=Phallus indusiatus.
Staurophallus senegalensis	=Something unknown.
Xylophallus xylogenus	See Mutinus.

APPENDIX IV.

LIST OF PHALLOIDS IN THE MUSEUMS.

All specimens are not listed, for some are so uncertain that I feel they should not be recorded. In case a plant has been named from these specimens, I sometimes record it under this name, even if I do not maintain it as a valid species.

KEW, ENGLAND.

Phallus multicolor, 3 collections, Australia—*Phallus nanus*, type, Andaman Island—*Phallus indusiatus*, Australia, Africa, British Guiana, Uganda, India, Ceylon, Java, Brazil, Mexico, Surinam Cape, several specimens from each country, also Cuba (? depauperate), Australia (var. *Rochesterensis*)—*Phallus duplicatus*, Carolina—*Phallus Ravenclii*, Connecticut—*Phallus truncatus*, poor specimens, and a drawing from which it appears to me to be rather a *Mutinus*—*Phallus rubicundus*, Southern United States, several—*Phallus rubicundus* (as *aurantiacus*), several from Australia and the form *gracilis*—*Phallus impudicus*, Australia, one only from Bailey and doubtful, England several (one the type of *iosmos*). East Indies but very ??, France, Germany—*Phallus tenuis*, Ceylon, named *Phallus pallidus* by Berkeley but never published—*Phallus aurantiacus*, co-type, ex Montagne—*Phallus gracilis*, South Africa—*Mutinus curtus*, Australia, type—*Mutinus elegans* (type of *Corynites Curtisii*)—*Mutinus Ravenclii*, type, one with a short apex called *brevis*—*Mutinus bambusinus*, nice drawing from Kurz, I think; Java, also dried from Java, also adventitious in hothouses, England—*Mutinus caninus*, a number from England—*Mutinus proximus*, type, Ceylon, poor—*Mutinus pentagonus* (labeled *Australiensis*) also labeled *pentagonus* from Bailey, Australia—*Kalchbrennera corallocephala*, South Africa, collection and also Kalchbrenner's fine drawing¹⁴—*Simblum gracile*, Ceylon, also several specimens from Kurz, Java, and a nice drawing originally named "*Thyridocephalus flavescens*, Mihi"—*Simblum sphaeroccephalum*, Brazil, Glazion (labeled *Simblum Brasiliense*, also drawing of the type of *S. pilidiatum*)—*Simblum periphragmoides*, type in good condition, Mauritius in Hooker's herbarium—*Clathrus pusillus*, type, Australia—*Pseudocolus rugulosus*, type drawing ex Kurz, Java, labeled *Clathrus triscapus*—*Pseudocolus Rothae*, two collections and sketch from Bailey—*Laternea columnata*, Brazil, also (very ???) from Australia, also Cuba, the latter more slender, also several from the United States—*Laternea pusilla*, type, Cooke—*Clathrus cancellatus*, England, France—*Clathrus pseudocrispus* type drawing ex McCatty, Jamaica, also poor specimens—*Clathrus crispatus* ex Thwaite, Ceylon (published as *cancellatus*)—*Clathrus cibarius*, about a dozen collections, all from New Zealand excepting one from Chiloe, an island off the coast of Chile—*Clathrus gracilis*, several, all from Australia—*Clathrus delicatus*, type, Ceylon—*Clathrus crispus*, Cuba, San Domingo, Uruguay—*Simblum clathratum*, type drawing and specimens, Old Calabar, Africa ex J. H. Holland—*Lysurus Gardneri*, abundant types, Ceylon—*Colus hirudinosus*, Corsica, Alpes Maritimes—*Lysurus Australiensis*, type, Australia—*Lysurus Woodii*, South Africa ex Wood, and same as co-type of *Anthurus Woodii*—*Aseroe Zeylandica*, type, Ceylon—*Aseroe rubra*, several from Australia—*Aseroe Hookeri*, type, New Zealand.

BRITISH MUSEUM, LONDON.

Phallus indusiatus from Philippines, Angola (Africa), China, Ceylon, India, Borneo, and St. Vincent (the latter a small form = *nana*)—*Phallus multicolor*, type with the original colored sketch and also a colored sketch by Broom—*Phallus impudicus*, several exsiccated from Europe, also specimens from Britain—*Phallus tenuis*, Ceylon—*Phallus quadricolor*, type—*Phallus calyptratus*, type—*Phallus Ravenclii* from Ravenel with his original notes—*Phallus auran-*

¹⁴ "The *Kalchbrennera* is very rare. Only twelve specimens have been found in five years."—Extract from letter from MacOwan.

tiacus, Australia—*Mutinus caninus*, photo ex. Krieger, also several specimens from England and the continent—*Mutinus elegans*, sketch from Morgan, labeled *Ravenelii*—*Mutinus Ravenelii* with a letter from Ravenel stating that the plant has been mis-cited in *Grevillea* (which is true)—*Mutinus proximus*, drawing by Broom—*Kalchbrennera corallocephala*, original description but no specimen from Welwitsch, drawing as reproduced in *Trans. Linn. Soc.*—*Simblum gracile*, Ceylon—*Laterna columnata*, abundant specimen from Ravenel—*Laterna Angolensis*, original description and drawing (no specimen) from Welwitsch. It was described as “splendida albida”—*Simblum Muelleri* (?) poor, Australia—*Clathrus cancellatus*, several specimens from Europe—*Clathrus delicatus*, co-type, Ceylon—*Clathrus gracile*, co-type, Australia—*Clathrus cibarius*, New Zealand, also Chiloe, Chile, also a form (see page 60) *Pernambuco*, also a specimen and sketch of a very similar species from Mombasa, East Africa. There are no color notes, but the sketch is dull yellow—*Clathrus crispus*, Vera Cruz, also specimen, poor, so labeled, from Australia, but not the species, I think—*Clathrus crispatus*, *Yucatan*, dried specimen, but seems the same as the original at Kew from Ceylon—*Lysurus Gardneri*, co-type, Ceylon—*Colus hirudinosus* (alcohol) from Meadow Valley, Asia Minor—*Aseroe rubra*, Australia.

CRYPTOGAMIC MUSEUM, PARIS, FRANCE.

Aseroe arachnoidea, type specimens in alcohol from Harmand, Cochinchina—*Anthurus trifidus*, in alcohol, type from Japan, Dr. Harmand, specimen is broken, but I think is a *Pseudocolus*—*Aseroe rubra*, New Zealand, Raoul—*Phallus impudicus*, several, France—*Phallus Ravenelii*. There is an historical specimen more than two hundred years old in the herbarium of Vaillant. It was “*Boletus phalloides*” and was “ex Canada, 1702”—*Phallus aurantiacus*, type, India—*Mutinus caninus*, several, France—*Mutinus elegans*, type, Ohio, good condition—*Mutinus Ravenelii* ex Ravenel—*Mutinus curtus*, fragment from Berkeley—*Mutinus xylogenus*, types ex French Guiana and drawing (good) from Leprieur—*Pseudocolus fusiformis*, type drawing from Reunion, all that is known—*Lysurus Gardneri* ex Berkeley—*Laterna triscapa* from Chile, the specimen is very small, but probably a small *columnata*—*Laterna columnata* ex Ravenel, also Chile—*Clathrus gracilis* ex Berkeley, also a specimen so referred from New Caledonia, the latter also published as *Colus hirudinosus*, but so poor it should not have been named—*Clathrus cancellatus*, a number all from Southern France and one Algeria—*Clathrus gracilis*, ex Berkeley, Australia, also a very poor specimen ex Africa, similar to *gracilis*, but too poor to judge. It was named *Clathrus Fischeri*—*Clathrus cibarius*, type ex New Zealand, in alcohol, also from Chile!—*Lysurus cruciatus*, a number of type specimens, but all much broken, French Guiana—*Colus hirudinosus*, specimen from Pyrenees, Algeria, and Corsica, the latter received by Montagne in 1820, thirteen years before it was published, and is labeled “*Clathrus hirudinosus nobis*”—*Phallus subuculatus*, type from Algeria, “very common and less fetid than *impudicus*,” says the collector—*Phallus duplicatus* ex Ravenel—*Phallus indusiatus*, in alcohol, from French Guiana, also dried, the type of “*Sophronia brasiliensis*” from Brazil, also type of “*Phallus radiciatus*” from French Guiana, also from Tonkin and New Caledonia—*Anthurus Calathiscus*, no specimen was received, but the drawing is there from Perrottet, India, on which I think Montagne based his imaginary “*Calathiscus Sepia*.”

UPSALA, SWEDEN.

In alcohol.—There is a very abundant collection made by E. Nyman in Java a number of years ago.

Phallus indusiatus, twelve collections, ten of the usual form with broad pilei and two with slender pilei.

Clautriavia merulina, two collections. This is a frequent species in Java.

Simblum peripluragmoides (and the form *gracilis*), five collections, which convince me that *gracilis* is at the best a form of *peripluragmoides*.

Mutinus bambusinus, one collection.

Clathrus Treubei, three collections, two old, with the arms broken apart, as shown in Myc. Notes, p. 382, fig. 212.

Jansia rugosa, one collection.

There is also at Upsala, in alcohol, a specimen of *Aseroe rubra* from New Zealand, collected by G. von Scheele; *Clathrus cancellatus* from Montpellier, France, and ten collections of *Phallus impudicus* by various collectors in Sweden.

Dried specimens.—*Aseroe rubra* from New Zealand, Berggren, and a drawing from the fresh specimens—*Clathrus cancellatus*, Tirol, Bresadola—*Clathrus pusillus*, "New Holland, ex. Berk."—*Mutinus elegans* from Curtis, and labeled "*Corynites brevis*," which was a manuscript name for it—*Clathrus cibarius*, New Zealand, Berggren—*Lysurus Gardneri*, co-types, ex. Berkeley—*Macowanites agaricinus*, co-type from Kalchbrenner. (Not usually classed in the phalloids, but to my mind closely related)—*Mutinus caninus*, ex. Quélet, France—*Mutinus* (unnamed), Guadalupe, L'Herminier. (Something curious but unnamed, and I think this specimen unnamable)—*Phallus impudicus* Fautrey, France—*Clathrus guttulatus*, no specimen but the type drawing from Örsted on which the species was based.

BERLIN, GERMANY.

Dried Specimens: *Clathrus cancellatus*, from a hothouse at Berlin. It probably does not occur in the open as far north as Berlin. Three collections from southern Europe—*Clathrus gracilis*, three from Australia, also so-labeled from Samoa (!) and it seems correct.—*Clathrus Baümeri*, the types, dried specimens but better unnamed from such material.—*Clathrus crispus*, Guadeloupe—*Simblum sphaerocephalum*, three from Brazil and Uruguay—"Anthurus" Woodii, co-types and the type drawing. I think it is a *Lysurus*—*Lysurus borealis* var. *Klitzingii*, same exactly I think as our American form—*Aseroe* (sp.?) from *Africa*!—*Aseroe pallida*, type and drawing from New Caledonia—*Phallus indusiatus*, specimens from Samoa, Usambara, New Guinea, Brazil and Australia—*Phallus rubicundus*, specimens from South Africa and Australia (labeled *aurantiacus*)—"Onphalophallus" *calvescens* and *Muellerianus*, both co-types (Australia) and both same, but specimens too poor for comment, much less to be named—*Phallus* (unnamed) from Brazil, on the order of *Ravenelii* but much too large—*Mutinus caninus* seven collections from Germany—*Mutinus elegans* from Rau, Penn.—*Mutinus* (sp.?) from Dr. Reinecke, Samoa. I found no *Mutinus* in Samoa.—*Phallus impudicus*, many specimens, mostly from Germany—*Kalchbrennera corallocephala* from MacOwan, South Africa, also a drawing (labeled *Aseroe Tuckii* and the type of this "new species")—*Floccomutinus Zenkeri*, the original drawing from Zenker.

In alcohol: *Clautriavia merulina*, Java—*Simblum periphragmoides*, Java—*Phallus indusiatus*, nine from Java, two from Africa, three from New Guinea. One of the African forms has unusually large meshes to the veil—*Clathrus cameruncensis*, type, Africa—*Clathrus Americanus* (unnamed) from Paraguay—*Clathrus chrysomycelinus*, type Brazil—*Laternea columnata*, Brazil—"Laternea pentactina", type, Java. It is an old condition of *Clathrus Treubei*, the arms broken apart as shown in figure 212, page 382, Myc. Notes—*Simblum sphaerocephalum*, Brazil—*Aseroe rubra*, New Guinea. I can not say as to the exact form, but it seems to have a broad limb and to tend towards the East Indian species.—*Lysurus borealis*, var. *Klitzingii*, Berlin, same I think as our American form—*Clautriavia Lauterbachii* (type of *Echinophallus Lauterbachii*) unfortunately only known from eggs as it is a most peculiar genus—Eggs of a *Clathrus* determined as *Preussii* ? but I think the species is ?—*Mutinus boninensis*, type, all known, intermediate between *Mutinus* and *Jansia*—*Jansia elegans*, abundant, from Java, type of "*Floccomutinus Nymanianus*" but quite different from the genus *Floccomutinus*, I think.—*Floccomutinus Zenkeri*, type Africa, a very distinct genus, in my opinion—*Mutinus bambusianns*, several collections from Java. Some have rather short heads and in size approach *Mutinus caninus* of Europe. The gleba-bearing portions are more pointed and not so even as *caninus*—*Mutinus caninus*, Germany—*Blumenavia rhacodes*, type, Brazil—*Itajahya galeriulata*, type Brazil.—*Phallus glutinoides*, type, Brazil. All are in egg state.—

Clathrus pseudocancellatus, type, Africa. It was probably originally in formalin as it is now flabby and shapeless.

Phalloids in alcohol in the show department of the Museum at Berlin: At Berlin there is the finest collection of phalloids, both as to numbers and condition, that exists anywhere. It was the work of the late Dr. Hennings, and the specimens are most beautifully prepared and displayed. The following is the list: *Laternea columnata*, Brazil—*Clathrus cancellatus*, Europe—*Colus hirudinosus*, Sardinia—*Clathrus gracilis*, Australia—*Mutinus Moelleri*, type, Brazil (=for me, *bambusinus*)—*Floccomutinus Zenkeri*, type, Africa—*Jansia elegans* (type of *Floccomutinus Nymaniensis*)—*Phallus rubicundus*, Africa (type of *Phallus sanguincus*)—*Phallus tenuis*, Java—*Clautriavia Lauterbachii* (type of *Echinophallus*)—*Itajahya galericulata*, type, Brazil—*Phallus impudicus*, two from Java, one Africa, also a slender form from Java (type of *echinata*)—*Clautriavia merulina*, two, Java—*Lysurus borealis* (var. *Klitzingii*)—*Aseroe rubra*, New Caledonia, also New Guinea—*Blumenavia usambariensis*, type, Africa—*Clathrus Preussii*, type, Africa—*Simblum sphaerocephalum*, Argentina—*Simblum periphragmoides*, Java—*Mutinus caninus*, Berlin—*Mutinus Fleischeri*, type, Java—*Mutinus bambusinus*, two, Java—*Phallus celebicus*, type, Celebes—*Phallus impudicus*, three, Berlin—*Kalchbrennera corallocephala*, South Africa (labeled *Kalchbrenneri Tuckii* var. *clathroides*, Henn.)—*Clathrus camerunensis*, type, Africa—*Blumenavia rhacodes*, type, Brazil.

THE LLOYD MUSEUM, CINCINNATI, OHIO.

Note.—As this list is made in England from the published records without having access to the specimens, some may have been overlooked. All listed are dried specimens unless otherwise noted.

Europe.

Clathrus cancellatus, Portugal, Rev. Torrend.
Clathrus cancellatus, Italy, M. Bezzi.
Clathrus cancellatus, France, L. Rolland.
Clathrus cancellatus, Spain, T. de Aranzadi.
Clathrus cancellatus, France, Auguste Bernin (fresh!) (alcohol).
Mutinus caninus, Ireland, Greenwood Pim.
Mutinus caninus, Germany, C. Engelke.
Mutinus caninus, Germany, Otto Jaap.
Mutinus caninus, France, C. G. Lloyd.
Mutinus caninus, Germany, W. Krieger, photograph.
Phallus imperialis, Italy, M. Bezzi.
Phallus impudicus, France, C. G. Lloyd.
Phallus impudicus, France, L. Rolland.
Phallus impudicus, Italy, M. Bezzi.
Lysurus borealis (red arms), England, Harold Murray, photograph.
Colus hirudinosus, Portugal, Rev. Torrend (alcohol).

United States.

Laternea columnata, Florida, L. N. Fowler (alcohol).
Laternea columnata, Florida, Dr. J. F. Maddox (alcohol).
Laternea columnata, Florida, C. E. Plcas.
Laternea columnata, Florida, C. G. Lloyd (alcohol).
Laternea columnata, Florida, C. E. Plcas (photograph).
Mutinus caninus, Canada, Jas. Fletcher.
Mutinus caninus, Maryland, W. T. Lakin.
Mutinus caninus, New Jersey, E. B. Sterling (alcohol).
Mutinus elegans, Ohio, Pennsylvania, and Kentucky, C. G. Lloyd (alcohol).
Mutinus elegans, Pennsylvania, Dr. Herbst (alcohol).
Mutinus elegans, Ohio, M. E. Hard (photograph).
Mutinus elegans, Connecticut, C. C. Hammer (eggs).
Mutinus Ravenelii (?), New Jersey, E. B. Sterling.
Mutinus Ravenelii, Ohio, Chas. Dury (alcohol).

Mutinus Ravenelii (?), Florida, G. C. Fisher.
Mutinus Ravenelii, Ohio, A. P. Morgan.
Lysurus borealis, Ohio, H. C. Beardslee.
Lysurus borealis, Massachusetts, Geo. B. Fessenden.
Lysurus borealis, Connecticut, C. C. Hammer (photograph).
Lysurus borealis, Massachusetts, Miss L. C. Allen.
Lysurus borealis (? red), Texas, W. H. Long, Jr.
Lysurus borealis, Massachusetts, G. E. Stone (alcohol).
Phallogaster saccatus, Ohio, C. G. Lloyd (alcohol).
Phallogaster saccatus, West Virginia, C. G. Lloyd.
Phallus duplicatus, Ohio, H. C. Beardslee (alcohol).
Phallus duplicatus, California, L. A. Greata.
Phallus duplicatus, Iowa, L. R. Waldron.
Phallus duplicatus, Ohio, C. G. Lloyd (alcohol).
Phallus duplicatus, Florida, G. C. Fisher.
Phallus duplicatus, Ohio, A. P. Morgan (alcohol).
Phallus duplicatus, Ohio, Prof. W. H. Aiken (alcohol).
Phallus imperialis, Colorado, E. B. Sterling.
Phallus imperialis, Texas, W. H. Long, Jr.
Phallus imperialis, California, L. G. Yates.
Phallus imperialis, Washington, D. C., F. J. Braendle.
Phallus imperialis, California, L. A. Greata.
Phallus imperialis, California, W. H. Henderson.
Phallus imperialis, Colorado, E. Bethel.
Phallus gracilis, Florida, L. N. Fowler (alcohol).
Phallus Ravenelii, Pennsylvania, Wm. Herbst (alcohol).
Phallus Ravenelii, Iowa, F. J. Fitzpatrick.
Phallus Ravenelii, Ohio, C. G. Lloyd.
Phallus Ravenelii, Ohio, Mrs. Carl Langenbeck (alcohol).
Phallus Ravenelii, Ohio, M. E. Hard (photograph).
Phallus Ravenelii, New Jersey, E. B. Sterling (fresh) (alcohol).
Phallus Ravenelii, Florida, G. C. Fisher.
Phallus rubicundus, Texas, W. H. Long, Jr.
Simblum sphaerocephalum, Nebraska, Rev. J. M. Bates.
Simblum sphaerocephalum, Texas, W. H. Long, Jr.
Simblum Texense, Texas, W. H. Long, Jr.

Brazil.

Itajahya galericulata, Rev. A. Schupp (photograph).
Clathrus chrysomycelinus, Rev. A. Schupp.
Clathrus Americanus, Rev. A. Schupp (dried).
Clathrus Americanus, Rev. A. Schupp (photograph).
Laternea rhacodes, Rev. A. Schupp.
Laternea rhacodes, Rev. A. Schupp (photograph).
Laternea (cfr. *columnatus*), Rev. J. Rick.
Laternea (unnamed?), Rev. J. Rick.
Phallus (labeled *rugulosus*), Rev. J. Rick.
Simblum sphaerocephalum, Rev. J. Rick.

West Indies.

Clathrus crispus, Jamaica, Miss Barrett.
Clathrus crispus, Jamaica, Wm. Chadwick.
Clathrus (sp.?), Bahamas, L. J. K. Brace (egg).
Clathrus Americanus, L. J. K. Brace (formalin).
Laternea pusilla (?), Jamaica, W. Jekyll.
Phallus indusiatus, Jamaica, H. E. Cox.
Phallus indusiatus, Jamaica, Miss Barrett.
Simblum sphaerocephalum, Bahamas, L. J. K. Brace.

Samoa.

Phallus indusiatus, C. G. Lloyd (photograph and dried).

Hawaii.

- Phallus rubicundus, D. D. Baldwin.
Phallus rubicundus (form gracilis), N. A. Cobb.

Australia and New Zealand.

- Aseroe Hookeri, Miss Jessie Dunn.
Aseroe Muelleriana, A. G. Hamilton.
Anthurus aseroeformis, Prof. McAlpine (photograph and description).
Clathrus cibarius, Robert Brown.
Clathrus cibarius, Miss Jessie Dunn.
Clathrus cibarius, S. Duncan.
Clathrus cibarius, W. H. Laing.
Clathrus cibarius, Rev. J. Wilson.
Clathrus gracilis, Prof. D. McAlpine.
Clathrus gracilis, J. T. Paul.
Clathrus gracilis, F. M. Reader.
Clathrus gracilis, J. H. Spencer (alcohol).
Clathrus gracilis, Margaret Flockton (alcohol).
Clathrus gracilis, Edmund Jarvis.
Clathrus gracilis, J. G. O. Tepper.

Africa.

- Kalchbrennera corallocephala, Cape, J. M. Wood.
Clathrus (undetermined), Dr. Labesse (alcohol).
Clathrus (unnamed), Congo, Edouard Luja.
Phallus indusiatus, Congo, Edouard Luja (dried).
Phallus indusiatus, Congo, Edouard Luja (photograph).
Phallus indusiatus, C. B. Ussher.
Unnamed genus, C. B. Ussher.

Mauritius.

- Phallus gracilis, Chas. A. O'Connor (alcohol).
Phallus indusiatus, Chas. A. O'Connor (alcohol).
Phallus Mauritianus, Chas. A. O'Connor (alcohol).

India.

- Genus unnamed, G. H. Krumbiegel.

Japan.

- Phallus indusiatus, Professor Gono (drawing).
Phallus impudicus, Professor Kusano (drawing).
Phallus rugulosus, Professor Kusano (drawing).
Phallus rugulosus, Professor Kusano (alcohol).
Phallus rugulosus, T. Nishida (alcohol).
Phallus tenuis, Professor Kusano (drawing).
Phallus tenuis, Professor Kusano (alcohol).
Mutinus boninensis (?), Professor Kusano (alcohol).
Mutinus boninensis (?), Professor Kusano (alcohol).
Lysurus Mokusin, Professor Gono (drawing).
Lysurus Mokusin, Professor Kusano (drawing).
Laternea bicornata, Professor Kusano (photograph).

Java.

- Clathrus Treubii, Dr. Ch. Bernard (photograph).
Clathrus Treubii, Dr. Ch. Bernard (alcohol).
Phallus indusiatus, Dr. Ch. Bernard (alcohol).
Claudonia merulina, Professor Patouillard (photograph).
Claudonia merulina, Dr. Ch. Bernard (alcohol).

Simblum gracile, Dr. Ch. Bernard (photograph).
Simblum gracile, Dr. Ch. Bernard (alcohol).
Jansia rugosa, Dr. Ch. Bernard (alcohol).
Aseroe arachnoidea, Dr. Ch. Bernard (alcohol).
Aseroe arachnoidea, Dr. J. P. Lotsy (alcohol).
Mutinus bambusinus, Dr. Ch. Bernard (alcohol).

APPENDIX V.

SOURCE OF ILLUSTRATIONS.

Photographs.

The best illustration of a phalloid is a good photograph, and we confidently look to photography to dispel much of the doubt that surrounds many of the species of foreign phalloids. We present herewith a list of those who have published or supplied photographs of phalloids or furnished material to illustrate phalloids by photography, and have indicated our figures that are taken from these sources. America leads the world in the use of photography to illustrate fungi. Well illustrated books have appeared by Atkinson, McIlvaine, Hard, and Marshall, all containing illustrations of phalloids. We have not cited them in detail, however, as they all cover the same restricted field of a few species. We think the following is otherwise a complete list of those who have aided in the work. We hope this pamphlet will awaken interest in the subject in other countries and that the next résumé of the subject will have a much larger list. If you find a phalloid that is not illustrated in this work by a good photograph, we hope you will not fail to secure a good photograph of it, if possible.

Dr. Chas. Bernard, Java.

Aseroe Zeylandica (Fig. 54).
Clautriavia merulina
Jansia rugosa (Figs. 30 and 31).
Clathrus Treubei (Fig. 72).
Simblum gracile (Fig. 84).

Auguste Bernin, Monaco.

Clathrus cancellatus (Fig. 70).

N. A. Cobb, Hawaii.

Phallus gracilis (Fig. 6).

Robt. E. Fries.

Itajahya galericulata.

C. C. Hanmer, Connecticut.

Lysurus borealis (Fig. 41).

M. E. Hard, Ohio.

Phallus Ravenelii (Fig. 8).

W. Krieger, Germany.

Mutinus caninus (Fig. 23).

Professor Kusano, Japan.

Laternea bicornata (Fig. 64).

W. H. Long, Jr., Texas.

Phallus rubicundus (Fig. 5).
Simblum Texense (Fig. 85).
Simblum sphaerocephalum (Fig. 86).

D. McAlpine, Australia.

Anthurus aseroeformis (Fig. 46).

Alfred Moeller (from Brazil).

Phallus indusiatus.
Phallus Moelleri (Fig. 13).
Clathrus chrysomycelinus (Fig. 80).
Laternea columnata.
Laternea rhacodes.
Phallus glutinolens (Fig. 10).
Pseudocolus Garciae (Fig. 65).
Mutinus bambusinus (Fig. 26).
Itajahya galericulata (Fig. 22).

Harold Murray, England.

Lysurus borealis.

Chas. O'Connor, Mauritius.

Phallus Mauritianus (Fig. 17).

N. Patouillard, Paris.

Clautriavia merulina.

Otto Penzig (from Java).

Aseroe arachnoidea (Figs. 55 and 56).
Phallus indusiatus.
Phallus favosus (Fig. 4).
Clautriavia merulina.
Phallus multicolor (Fig. 14).
Simblum gracile.
Jansia elegans (Figs. 32 and 33).
Jansia rugosa.
Mutinus Fleischeri (Fig. 27).
Pseudocolus Javanicus (Fig. 66).

T. Petch, Ceylon.

Jansia rugosa.
Phallus indusiatus.
Clautriavia merulina (Fig. 19).
Clathrus crispatus (Fig. 74a).
Clathrus delicatus (Fig. 82).
Simblum gracile.
Lysurus Gardneri (Fig. 38).

C. E. Pleas, Florida.

Phallus duplicatus (Fig. 16).
Laterna columnata (Figs. 57 and 58).

Carleton Rea, England.

Lysurus borealis (Fig. 40).

Rev. J. Rick, Brazil.

Laterna rhacodes (Fig. 61).
Simblum sphaerocephalum.

Rev. A. Schupp, Brazil.

Itajahya galericulata (Fig. 21).
Clathrus Americanus (Fig. 71).

Rev. J. Torrend, Portugal.

Colus hirudinosus (Figs. 89 and 90).
Simblum sphaerocephalum.

Photographed by the writer.

Phallus impudicus (France) (Fig. 1).
Phallus Ravenelii, Ohio (Fig. 7).
Phallus indusiatus, Samoa (Fig. 12).
Mutinus elegans, West Virginia (Fig. 24).
Mutinus Ravenelii, Ohio (Fig. 25).
Phallogaster saccatus, Ohio (Figs. 93 and 94).

Figures.

Next to a photograph, an accurate drawing is the best illustration. In a few instances we have used Penzig's figures in preference to his photographs. I think all figures are not good, especially the old ones reconstructed from dried specimens. However, as to many species they are all we have, and the following are the sources from which they have been reproduced. There are phalloids unillustrated by even a crude drawing. It is a standing reproach that authors are found to engage in such work. In a few such cases we have photographed the type as a makeshift illustration, but the most of such work we think is better considered as "nomina nuda" and relegated to "synonymy."

- | | | | |
|----------|--------------------------------|----------|---------------------------------|
| Fig. 2 | Drawing by Otto Penzig. | Fig. 62 | Drawing by Welwitsch. |
| Fig. 3 | Drawing by Ed Fischer. | Fig. 63 | Drawing by Spegazzini. |
| Fig. 9 | Drawing by Ed. Fischer. | Fig. 67 | Drawing by Kurz. |
| Fig. 11 | Drawing by Alfred Moeller. | Fig. 68 | Drawing at Paris. |
| Fig. 15 | Drawing by Rumphius. | Fig. 69 | Drawing by F. M. Bailey. |
| Fig. 18 | Drawing by M. C. Cooke. | Fig. 73 | Drawing by Berkeley. |
| Fig. 20 | Drawing by Ed. Fischer. | Fig. 74 | Drawing by Ed Fischer. |
| Fig. 28 | Drawing by F. M. Bailey. | Fig. 75 | Drawing by Oersted. |
| Fig. 29 | Photographed from the type. | Fig. 76 | Drawing by Turpin. |
| Fig. 34 | Drawing by F. M. Bailey. | Fig. 77 | Drawing by Dr. McCatty. |
| Fig. 35 | Drawing by Ed Fischer. | Fig. 78 | Photograph, Museum at Kew. |
| Fig. 36 | Drawing by Ed Fischer. | Fig. 79 | Photograph from alc. specimens. |
| Fig. 36a | Drawing by Zenker. | Fig. 81 | Drawing by Ed Fischer. |
| Fig. 37 | Photograph from alc. material. | Fig. 83 | Drawing by Hooker. |
| Fig. 38a | Photograph from dried type. | Fig. 87 | Drawing by Ed Fischer. |
| Fig. 39 | Photograph from dried type. | Fig. 88 | Drawing by J. W. Holland |
| Fig. 42 | Drawing by Mueller. | Fig. 91. | Drawing by Kalchbrenner. |
| Fig. 43 | Drawing by Ed Fischer. | Fig. 92. | Drawing by Kalchbrenner. |
| Fig. 44 | Drawing by Montagne. | Fig. 95 | Drawing by Kalchbrenner. |
| Fig. 45 | Photographed from the type. | Fig. 96 | Drawing by Berkeley. |
| Fig. 47 | Drawing by Kalchbrenner. | Fig. 98 | Drawing by Berkeley. |
| Fig. 48 | Drawing by Berkeley. | Fig. 99 | Drawing by Hennings. |
| Fig. 49 | Sketch by Perrottet. | Fig. 100 | Drawing by Montagne. |
| Fig. 50 | Drawing by La Billardiére. | Fig. 102 | Drawing by Berkeley. |
| Fig. 51 | Drawing by Berkeley. | Fig. 103 | Drawing by Patouillard. |
| Fig. 52 | Drawing by Berkeley. | Fig. 104 | Drawing by Patouillard. |
| Fig. 53 | Drawing by Kalchbrenner. | Fig. 105 | Drawing by Corda. |
| Fig. 53a | Drawing by Le Rat. | Fig. 106 | Drawing by Kalchbrenner. |
| Fig. 59 | Drawing by Turpin. | Fig. 107 | Drawing by Spegazzini. |
| Fig. 60 | Photograph of the type. | | |

APPENDIX VI.

Reproduction of the original figures of doubtful and little known species of the genera *Phallus* and *Mutinus*. Most of them I think have no value whatever, but there is no way of getting rid of them.

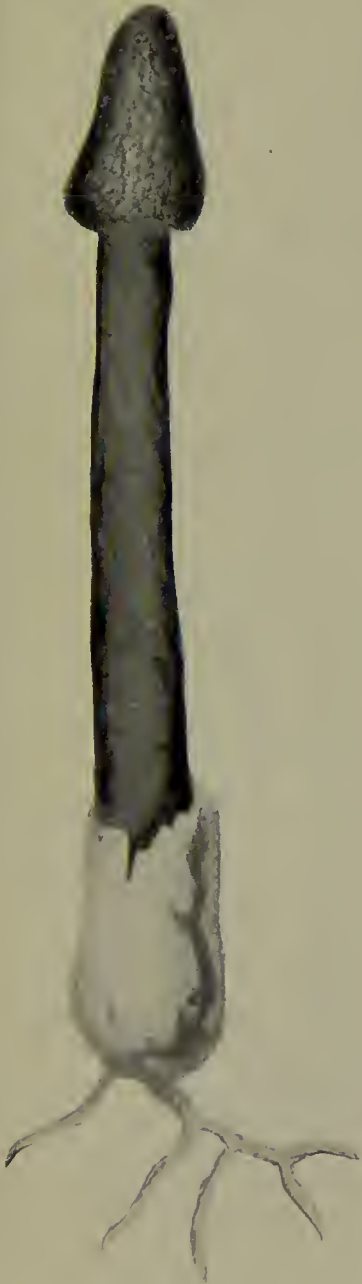


Fig. 95.

PHALLUS DISCOLOR.

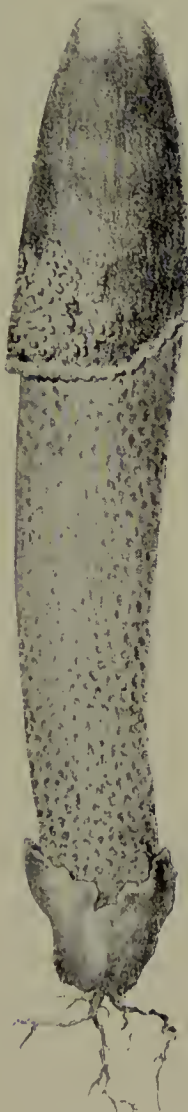


Fig. 99.

PHALLUS CELEBICUS.



Fig. 102.

PHALLUS QUADRICOLOR.



Fig. 98.

PHALLUS CAMPANULATUS.



Fig. 96.

PHALLUS CALYPT-
TRATUS.



Fig. 106

MUTINUS PA-
PUASIUS.



Fig. 107.

MUTINUS ARGENTINUS.

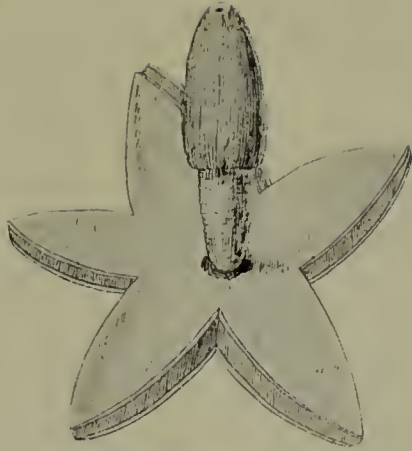


Fig. 105.

MUTINUS CURTUS.



Fig. 100.

PHALLUS CA-
NARIENSIS.



Fig. 103.

MUTINUS MINIMUS.

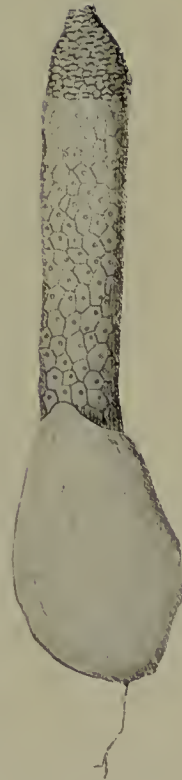


Fig. 104.

MUTINUS BORNE-
ENSIS.

APPENDIX VII.

ASEROË RUBRA LA BILL. VAR. JUNGHUHNII SCHLECHT.

PAR DR. CH. BERNARD.

Avec deux photographies.

Il y a peu de temps, j'ai publié dans les Annales du Jardin botanique de Buitenzorg (Vol. XXII, 1908. 2^{ème} partie, pp. 224-238), une petite note sur cette Phalloïdée très curieuse, assez rare, et jusqu'alors assez mal connue. Je déplorais à cette occasion de n'avoir pas pu faire une photographie convenable de ce type, et je signalais certains points dont l'étude demandait à être reprise ultérieurement. Depuis lors, j'obtins, toujours grâce à l'extrême amabilité de M. le Dr. J. Bosscha, plusieurs magnifiques exemplaires de cet organisme, et entre autres les deux individus dont M. Huysmans a bien voulu faire les deux photographies qui accompagnent cette note. Tous ces échantillons provenaient de la plantation de Taloen, sur le plateau de Pengalengan, au Sud de Bandoeng, c'est à dire de la même station où avaient été récoltés les



exemplaires décrits dans ma précédente note. Ces nouveaux individus n'ont permis de faire certaines observations venant jeter quelque lumière sur des détails laissés jusqu' à présent dans l'ombre, et je ne crois pas inutile de publier ici ces quelques lignes qu' illustreront les deux photographies en question, et qui viendront fixer ou rectifier certains points d' importance secondaire, car je dois dire dès le début que, dans leurs caractères importants, ces individus coïncidaient très exactement avec ceux déjà observés.

Je disais entre autres: "*Ascroë rubra* est une espèce extrêmement polymorphe; . . . il est impossible de trouver dans la série de ses formes de "passage une solution de continuité permettant de séparer des espèces . . .

"et la forme qui nous occupe ici vient diminuer encore la valeur des variétés nettement délimitées. . . . Il importe donc de ne séparer les types qu' avec la plus grande prudence, car il est probable que pendant bien longtemps, chaque fois qu' on découvrira un exemplaire de ces champignons éminemment variables, ce nouvel individu constituera un anneau de cette longue chaîne de types voisins, atténuant les différences et supprimant telle ou telle variété."

Les échantillons dont il sera question dans la présente note apporteront un argument de plus en faveur de cette opinion, et si, par certains de leurs caractères, ils se rapprochent des individus que j'ai décrits antérieurement, la disposition de leurs bras, qui est fort typique, établit un passage vers d'autres formes. Je me contenterai de donner une description de ces exemplaires, les points sur lesquels je veux fixer l'attention ressortiront d'eux mêmes de la description et de l'examen des photographies.



Les deux échantillons que j'ai pu faire photographier n'étaient pas de dimensions particulièrement considérables, et le nombre des bras était de 18 chez l'un et de 22 chez l'autre, ce qui correspond aux indications que j'ai données antérieurement. De même l'extrémité plus ou moins régulièrement enroulée des bras est caractéristique. La disposition de la volve, du pied assez court, de la glèbe, les couleurs, l'odeur, etc., ne distinguaient en rien ces formes de celles déjà décrites. Pour tous ces détails je renvoie donc à ma précédente

publication. Mais le point important et sur lequel je tiens à insister est le suivant: tandis que les exemplaires que j'ai observés jusqu'ici établissaient un passage entre les var, *zeylanica* et *Junghuhnii* de *Aseroë rubra*,—certains de leurs caractères, comme je l'ai démontré p. 235, rappelant ceux de l'une ou de l'autre de ces deux variétés,—les types dont nous nous occupons aujourd'hui et surtout l'un d'entre eux sont beaucoup plus voisins de la variété *Junghuhnii*; et même par la plupart de leurs détails, ils coïncident presque exactement avec cette variété comme nous la trouvons décrite d'ordinaire; cependant en comparant tous mes échantillons, j'ai pu me convaincre qu'il n'y a nulle raison de séparer les unes des autres ces différentes formes qui toutes du reste proviennent d'une seule et unique localité; elles appartiennent non seulement à la même espèce, mais aussi à la même variété, cela ne fait aucun doute et il me semble que la question que se posait *E. Fischer* dans le "Sylloge Fungorum," Vol. VII, p. 25, quand il se demandait à propos de *A. Junghuhnii*: "An ab *A. zeylanica* diversa?" doit être certainement résolue par le négative. Non seulement il ne saurait s'agir de deux espèces différentes, mais encore il me paraît que les deux types doivent être rangés sous un même nom de variété.

Le caractère important auquel je fais allusion est la disposition des bras; je disais à ce propos: "Les bras étant séparés les uns des autres et le disque, dans certains échantillons étant très peu développé, cela parle en faveur d'une identité avec *A. zeylanica*. Cependant il faut remarquer que le disque peut être remarquablement développé (caractère de *A. Junghuhnii*) puis que, si les bras sont le plus souvent nettement séparés les uns des autres jusqu'à leur base, il existe cependant des cas, assez rares, où l'on pourrait croire à de vagues indications de rapprochements par paires." Dans les formes qui nous occupent, il ne s'agit plus de vagues indications. Un des deux individus photographiés n'est pas encore très convaincant à cet égard, il est cependant facile de reconnaître que ses 18 bras sont rapprochés par paires les uns des autres. Mais l'autre individu est des plus typiques, et ses 22 bras sont très nettement et très régulièrement rapprochés deux par deux les uns des autres. Dans les deux échantillons le disque est assez fortement développé.

Pour terminer je crois qu'il m'est permis de maintenir, en la renforçant, la conclusion que j'énonçais à la fin de mon précédent travail, mais que je n'osais encore affirmer, à savoir que les variétés *zeylanica* et *Junghuhnii* d'*Aseroë rubra* devront être réunies dans la suite sous un même nom.

Cette petite note n'a pas d'autre prétention que de présenter deux individus de cet intéressant champignon qui, s'il a été souvent décrit, et plusieurs fois dessiné, n'avait pas encore, que je sache, été photographié jusqu'ici.

Les deux photographies reproduisent le champignon à peu près en grandeur naturelle.

EDITOR'S NOTE.

We publish the above article by Dr. Chas. Bernard, and we take no editorial liberties with it, but publish it just as received. We are particularly glad to get the photograph, which is the first published of this species of the East Indies. As we have stated in detail on page 44 our views as to the species of *Aseroe*, we shall not discuss the matter here. We believe, however, that the Ceylonese plant, *Aseroe Zeylandica*, and the Javanese plant, *Aseroe Junghuhnii*, are one and the same but quite distinct from the New Zealand and Australian forms which go to make up *Aseroe rubra*.—C. G. L.



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In making up the pages it was not practicable to keep the figures in serial order nor always in close relationship to the corresponding text. In this index we have given the page on which will be found the text and also the figure for each species.

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